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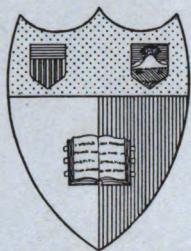
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THE  
CHINA PILOT.

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PART I.

EAST COAST FROM HONGKONG TO SHANGHAI.

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CHIEFLY FROM THE SURVEYS OF  
CAPTAIN COLLINSON, R.N., C.B.

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EDITED BY ROBERT LONEY, PAYMASTER R.N.

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PUBLISHED BY ORDER OF THE LORDS COMMISSIONERS OF THE ADMIRALTY.

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PRINTED FOR THE HYDROGRAPHIC OFFICE, ADMIRALTY;  
AND SOLD BY  
J. D. POTTER, *Agent for Admiralty Charts*,  
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**CHINA PILOT.**

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## AUTHORITIES.

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Names of Authorities and Officers from whose Remark Books extracts have been made in compiling The China Pilot:—

PETER CRACROFT, Commander H.M.S. Reynard, 1850-51.  
 H. M'AUSLAND, Master, ditto, 1850-51.  
 JOHN S. ELLMAN, Commander H.M.S. Salamander, 1851-54.  
 DAVID WILDER, Master H.M.S. Salamander, 1853-4.  
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For the Appendix:—

KRUSENSTEEN, Voyage round the World, 1805.  
 Captain F. W. BEECHY, F.R.S., 1827.  
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 JOHN RICHARDS, Master Commanding H.M.S. Saracen, 1854.  
 SIEBOLD, Chart of the Japanese Islands, 1828.

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## ADVERTISEMENT.

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THE China Pilot, Part I., contains Sailing Directions for the East Coast of China from Hongkong to Shanghai, including the Meiaco-sima, Loochoo, and the islands to the north-east of them. The work was originally drawn up by Captain Collinson, C.B., from surveys of that coast made by himself, Captain Kellett, C.B., and Lieutenants Bate and Gordon, R.N., between the years 1841-5, and the Appendix from the surveys of Captain F. W. Beechey, Captain Sir Edward Belcher, C.B., Rear Admiral Cecille, and the officers of the French Corvette La Sabine, and the United States Japanese Expedition, 1851-3. To this have been added extracts from the Remark Books of officers of Her Majesty's ships employed on the China Station to the close of the year 1854, and notes from all other available sources. The whole has been revised and edited by Mr. Robert Loney, Paymaster, R.N., who has made several voyages to China in command of merchant vessels.

With the aid of such materials it is probable that the present is the best work on the subject hitherto published. It is, however, far from complete; and officers both in the Royal and Mercantile Navy are earnestly requested to transmit to the Secretary of the Admiralty a notice of any errors or omissions they may discover in it, or any fresh information they may obtain, with a view to its improvement, for the general benefit of the mariner.

J. W.

Hydrographic Office, Admiralty,  
1st June 1855.



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**IN THIS WORK THE BEARINGS ARE ALL MAGNETIC  
EXCEPT WHERE MARKED AS TRUE.**

**THE DISTANCES ARE EXPRESSED IN SEA MILES OF  
60 TO A DEGREE OF LATITUDE.**

**A CABLE'S LENGTH IS ASSUMED TO BE EQUAL TO  
100 FATHOMS.**

SAILING DIRECTIONS AND GENERAL DESCRIPTION  
OF THE  
C O A S T   O F   C H I N A

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CHAPTER I.

FROM HONG KONG TOWARDS AMOY.

1. VESSELS having come out through the Lyemoon Pass,\* and wishing for anchorage, either for the night or in consequence of bad weather, will find a good berth on the northern side of Tamtoo. Tamtoo Island in 6 fathoms; but bearing in mind that the water shoals to  $2\frac{3}{4}$  fathoms 3 cables' lengths from the Joss House on the north side of the bay.

2. The island is 820 feet above the sea, and 3 miles in circumference, being separated from the main by a channel called by the Chinese Fotowmoon, and which is  $1\frac{1}{4}$  cables' lengths across; rocks lie off both points in the channel, and there is a sunken rock bearing S.E.  $\frac{1}{3}$  E. from the north-east point of Tamtoo distant 4 cables' lengths. When on the rock, the west end of Steep Island (the first island to the N.E.-ward) just shows clear of a remarkable headland (Yeh Bluff), this side of it bearing N.N.E.  $\frac{1}{2}$  E.

3. The south point of Tamtoo is a low peninsula, and to the southward of its west point there is a flat islet or rock lying a cable's length from the shore, with reefs inside of it. Upon the first point outside the Fotowmoon Pass lies a ruined fort.

4. The distance from the Fotowmoon to the Steep Islet is *Steep and Trio Islets.*  $1\frac{1}{2}$  miles, and the islet is 4 cables' lengths from the shore;  $1\frac{1}{2}$  miles farther north lie the Trio Islets; and on the main between Trio and Steep there is an indentation in the coast

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\* See Plan of Hong Kong, Sheet II of the East Coast of China, and Mirs Bay.

with 8 fathoms water, but exposed to easterly winds and swell.

*Ninepin Group.* 5. The Ninepin Group lies 3 miles east of the Fotowmoon Pass ; the two largest islets are to the westward, and bear north and south of each other, the channel between them being 2 cables' lengths wide ; the southern face of the South Ninepin is a precipitous cliff, 400 feet high ; off its S.W. side there is a smaller islet, and towards its northern point the land becomes lower, with a peaked rock in the offing.

6. The surface of the North Islet is nearly of the same elevation, with the exception of a cleft near to its northern end ; off its S.W. side also lies an islet.

*Ninepin* 7. The Ninepin itself lies to the eastward of the latter nearly 1 mile, but assumes the appearance that its name indicates only when seen in a N.W. or S.E. direction ; otherwise the name is liable to mislead ; close to it on the N.W. side is a smaller islet, and there are detached rocks upon its N.E. and W. sides ; it rises 222 feet above the sea.

*Sunken Rock.* 8. S.  $\frac{3}{4}$  W. from it, not quite 7 cables' lengths, lies a rock with only a foot over it at low-water springs ; from whence the south end of the South Ninepin bears W.  $\frac{1}{4}$  S., being in one with the shoulder of the hill to the right of the highest part of Tamtoo ; the right extreme of the rock on the north side of the North Ninepin bears N.W.  $\frac{1}{3}$  W., and is in one with the summit of the large islet of Shelter in Jin Bay : the south end of the South Ninepin in one with Fotowmoon Channel, will lead south of it.

*North Rock.* 9. To the north-west of the Ninepin, at the distance of 9 cables' lengths, lies the North Rock, nearly level with the water's edge, and having a reef which shows at low water only, not quite a cable's length to the S.E. of it.

*Tides.* 10. The channel between the Ninepin Group and Steep Island is nearly 2 miles wide, with a depth of 15 to 17 fathoms ; where, at the change of the moon in May 1845, the flood-tide ran to the S.S.E., and the ebb to the S.S.W., the former at the rate of 0.3 and the latter 0.5 knots.

*Jin Bay.* 11. North of the Ninepin Group the mainland forms a deep bay, containing Port Shelter and Rocky Harbour ; when steering for the former, which is the western of the two, Trio

and Table Islets should be left to the westward on account of some rocks which extend 3 cables' lengths from the point west of them. To the northward of Table Islet, 9 cables' lengths, comes the southern point of Jin Island, with a peaked rock 2 cables' lengths from the shore ; and E.  $\frac{3}{4}$  N. from the peaked rock, rather more than a cable's length, there is a rock awash at high water.

Shelter Island lies  $1\frac{1}{4}$  miles to the N.W. of the Table, and *Port Shelter*. should likewise be kept to the westward, as the ground is foul between it and the main ; good anchorage, however, will be *Anchorage*. found on the N.W. side of Shelter Island, in 8 fathoms, but giving its north point a berth of a cable's length, and avoiding the Nine-feet Patch, which lies in the centre of the bay 6 cables' *Nine-feet Patch*. lengths to the northward ; the marks for which are :—Table Island in one with north end of North Ninepin, bearing S.E.  $\frac{3}{4}$  S. ; the opening between Keui and Jin Islands nearly E., and Shelter Island S. by W.

Sharp Island lies north of Shelter  $1\frac{1}{2}$  miles, with fair anchorage on its eastern side, but exposed to southerly winds ; and from which, passing north of Keui Island, a junk or boat passage will be found into Rocky Harbour.

12. Rocky Harbour is formed by Keui and Jin Islands on the *Rocky Harbour*. west, and High, Basalt, and Bluff Islands to the east and south-east. The southern entrance between Bluff and Jin Islands is a mile wide ; the rock awash at high water off the latter, has been already mentioned in the preceding article ; and on the east side of Jin, 2 cables' lengths from the shore, is Bay Island, which is low and flat. Midway between it and the north end of Bluff Island there is a rocky patch with 3 feet at low water, from which the west point of Bluff Island, when in one with the summit of North Ninepin, bears S.  $\frac{1}{4}$  E. ; the southern summit of Bay Island W.N.W. The North Ninepin and Bluff Islands touching, lead to the west of it, and the west end of the rock S.W. of North Ninepin, in one with the west point of Bluff Island, will clear it to the eastward ; also, when the Pyramid Rock opens clear of the north end of Bluff Island, vessels are to the northward of it.

To the north of that reef 7 cables' lengths, and off Green *Three-fathoms Rock*. Islet, there is another reef carrying but 4 feet ; from whence

Bay Island bears S.W., Pyramid Rock S.E., and the small green islet on the east shore E.  $\frac{1}{2}$  N., distant 3 cables' lengths.

*Anchorage.* Anchorage will be found in the neighbourhood of a small cove to the north of Green Islet in the northerly monsoon, where there is a mandarin station and a village ; inside the cove there are 6 fathoms water, but the space is confined, owing to sunken rocks ; in the southern monsoon vessels will be less exposed by anchoring to the N.W. of Bay Island.

*Basalt Channel.* 13. Small vessels may pass through the channel (between Basalt and Town Islands); it is 4 cables' lengths wide, but obstructed by islets and a rock awash at high water, and to the eastward of the Three-fathoms' Rock the ground is foul with some casts of three fathoms.

*Basalt Island.* 14. Basalt Island lies 4 cables' lengths to the S.E. of Bluff Island, with a depth of 5 fathoms between them ; the former is 0.8 of a mile long, and rises to the height of 572 feet ; its southern faces and those of Bluff Island are very precipitous.

*Town Island.* 15. Town Island lies to the northward of Bluff and Basalt Islands, with the channel between the two, as mentioned above, a breadth of 4 cables' lengths, but it should not be used without a leading wind or in handy vessels, as the "Chow Chow water," or whirling eddies, might lead them into a scrape.

*High Island.* 16. High Island, which is  $7\frac{1}{2}$  miles in circumference, is separated from Town Island by a channel 1 cable's length across and 4 fathoms deep ; and to the east of the latter,  $1\frac{1}{2}$  cables' lengths, stands Hole Island, so called because it is perforated. To the northward of those islands there are two low islets. The channel between High Island and the main has not more than a foot at low water in some places.

*Coast line north of Hole Island.* 17. From Hole Island the coast trends N.-easterly  $2\frac{1}{4}$  miles to Conie Isle, which is not quite a cable's length from the shore, and off a small bay  $3\frac{1}{2}$  cables' lengths wide and 7 deep, which might be used in the northern monsoon. Further north lies Fung Bay 1.7 miles across ; in the middle of which there are two islets and a rock, but too much exposed to the eastward, and too small to be of any use to the navigator.

*Fung Bay.* 18. Sharp Peak, which rises to the height of 1,339 feet, and in one of the most remarkable features on making the coast hereabouts, overlooks this bay, and bears from the Ninepin N.  $\frac{1}{4}$  E. 9 miles.

*Sharp Peak.*

19. Mirs Bay is  $5\frac{1}{2}$  miles wide at the entrance; its extent *Mirs Bay*, northerly is 11 miles, and in an east and west direction 18 miles.

20. In the opening of that great bay stands Gow-tow, a *Gow-tow*. rocky islet 90 feet high, and S.W. by W. from it a rocky ledge, part of which is just awash at high water.

21. South Gow is 96 feet high, lying 1·7 miles to the S.W. of that ledge, and half a mile off shore. Anchorage in S.-westerly winds will be found to the west of this islet in 8 or 9 fathoms. The point opposite South Gow has two islets off it, and the coast trends suddenly to the westward, then northerly  $1\frac{1}{2}$  miles, where there is an opening into Long Harbour, bearing west from Gow-tow. In the centre of this opening there are 2 fathoms, but it is barely a cable's length wide, with *and Rocks*.

22. On the north side of the opening lies Grass Island, which is 1·3 miles, from N. to S., and 0·7 from E. to W.; and to the eastward of which, at 4 cables' lengths, the North Gow, with a rock to the N.W. of it awash at high water, and a reef are to be avoided.

23. From the north point of Grass Island the distance is *Port Island*. 7 cables' lengths to the south end of Port Island, which is 1·9 miles in circumference, and 430 feet high; its eastern point, which is narrow, projects 3 cables' lengths from the body of the island; on the northern side there is a convenient watering-place.

24. Long Harbour extends to the southward 5 miles from *Long Harbour*. Port Island, the distance across at the entrance is 7 cables' lengths. Both shores are steep-to, with the exception of the south-west end of Grass Island, where there is a cove with a rock off its north point; and a shoal patch of 2 fathoms; as well as some rocks which show at low water and extend nearly a cable's length from the shore. To the southward of Grass Island, the harbour widens to 1·2 miles, and then gradually decreases towards its southern end, where it is separated into two coves, towards the southern end of which 4 fathoms will be found. To the westward of Long Harbour is Jones Cove, which extends a mile N.N.E. and S.S.W. and is *Jones Cove*. 3 cables' lengths wide; but it, as well as Long Harbour, are open to a considerable swell from the N.N.E.

*Jones Cove.* 25. On the western side of Jones Cove there are three islets; off the largest, Flat Islet, there are two rocks awash at high-water, 2 cables' lengths to the northward; and from them the summit of Port Island bears N.E.  $\frac{3}{4}$  E., and the north point of Grass Island E.  $\frac{1}{2}$  N.

*Tolo Channel.* 26. The distance is 1·2 miles from Port Island to Bluff Head, the north point of Tolo Channel, which trends S.W. by W.  $7\frac{1}{2}$  miles to White Head, forming a sound not less than 7 cables' lengths wide, the shores of which are steep-to, and the depth of water varying from 6 to 14 fathoms, with a small cove on the north shore, 2 miles from Bluff Head,

*Knob Reef.* 27. Three miles and three quarter from Bluff Head is Knob Reef, and a flat reef 2 cables' lengths farther to the S.W., and  $2\frac{1}{4}$  miles farther lies Bush Reef, north of which  $3\frac{1}{2}$  cables' lengths is Harbour Island, with a depth of 10 and 12 fathoms between them; the main land to the southward is nearly a mile distant, but the 3 fathoms line extends 4 cables' lengths from the shore on this side. Opposite to Knob Reef, on the southern shore, there is a large cove.

*Tolo Harbour.* 28. At White Head, which is a peninsula, the sound separates into three branches, the south-western arm, or Tide Cove, extending  $3\frac{1}{2}$  miles beyond it, and the water shoaling gradually from 5 fathoms to the bottom of the bay, from whence there is a footpath to Kowloon village in Hong Kong harbour, the distance across from water to water being 4 miles, and the greatest elevation to surmount 920 feet. In the middle of Tide Cove, 2 miles from White Head, lies a reef, which covers at high water, from whence a remarkable waterfall may be seen on the western shore; the channel here is 4 cables' lengths wide, with a depth of 3 fathoms.

On full and change days it is high water at 9 o'clock, the rise and fall being 6 feet 4 inches, but at neap tides the water remains nearly at the same level.

*N.W. Arm.* 29. The N.W. arm also extends  $3\frac{1}{2}$  miles, containing in its entrance Centre Isle, and to the northward some smaller islets, with anchorage between them and the main.

*Plover Cove.* 30. Plover Cove, or the N.E. arm, would afford the most secure place to ride out a typhoon; it runs back  $2\frac{1}{4}$  miles to the eastward beyond Harbour Island, and has a depth of  $4\frac{1}{2}$  and 5 fathoms.

31. The Hunchback rises immediately behind White Head, *Mount Hunchback*. 2,315 feet, with very precipitous face.

32. N.W.b. N.  $2\frac{3}{4}$  miles from Port Island, is Round Islet, the easternmost of an extensive group, the largest of which are Double, Crescent, and Crooked Islands. Double Island is the southernmost, and lies 6 cables' lengths to the N.W. of Bluff Head ; the channel which separates it from the main is large enough for boats only ; that between it and Crescent Island is a cable's length wide, with 4 to 7 fathoms ; and between Crescent and Crooked Islands, the narrowest part of the channel is 2 cables' lengths, with a depth of 10 and 12 fathoms. The east end of Crooked Island is a remarkable peaked head, 9 cables' lengths from Round Island ; and between it and the main land, which is 1.7 miles distant, there are 9 to 4 fathoms. Westerly from Crooked Island the bay extends 5 miles, the water gradually shoaling, and affording good anchorage. Crooked and Crescent also possess two secure basins ; and the entrance into Double Haven on the north side is 3 cables' lengths wide ; inside the depth of water is 7 fathoms ; and on the N.W. side of Crooked Island stands a large village.

33. The northern portion of the bay of Mirs is steep-to.

34. The Island of Pengchow lies in the N.E. corner of the *Pengchow*. bay, bearing North  $4\frac{1}{2}$  miles from Gow-tow ; it is 3 miles in circumference, and 148 feet high. Shale stones form its beaches and the geological formation is totally different from the adjacent land, being alluvial. The distance between it and the main is rather more than a mile, forming a convenient harbour sheltered from all winds. E.N.E. from it the remarkable peak of East Cone, 750 feet, overlooks Typoong Bay, the distance across being  $1\frac{1}{2}$  miles, and the land but little elevated. The village of Namoh stands on the isthmus ; and in the bay to the southwest of it there is a peaked rock and a sunken reef.

35. Anchorage in the N.E. monsoon will be found all along *Eastern shore of Mirs Bay*. the eastern shore of Mirs Bay to the southward of Pengchow ; but the number of fishing platforms on stakes in 8 and 9 fathoms water render the navigation awkward in the dark. The hills near Mirs Point rise to the height of 1,200 feet ; and just off its southern extremity lies the small islet of Griffin, and east of it some rocks, a cable's length from the beach. The first point to the westward of the islet is perforated.

36. Along the coast, which trends easterly towards Tooniang Island, there are two sandy bays, off the westernmost of which lies Coast Islet, 4 cables' lengths from the shore, and having 4 fathoms inside of it.

*Tooniang Group.*

37. The Tooniang group consists of eight islets, including Single Island and Acong Rock ; the largest is the northernmost, being 5 miles in circumference, and rising like a cone to the height of 960 feet ; off its western end are two islets, the nearest, Net Island, is sugar-loaf shaped, and at low water there is but a foot water between it and Tooniang. Peak Rock stands  $2\frac{1}{2}$  cables' lengths to the S.W. of it, with a depth of 4 and 5 fathoms between them ; it appears like two islets with a shingle beach connecting them. N.W., 4 cables' lengths from them lies a ledge of rocks, the north end of which is always visible. In the northern monsoon the trading junks lie to the southward of Net Island, and opposite to a fort on Tooniang ; but the ground is foul within 2 cables' lengths of the Fort point.

*Peak Rock.*

38. Immediately to the south of Tooniang, three islets called by the Chinese Samun (or three passages), form a harbour sheltered from all winds, except W.N.W. to S.W. b. S. ; the southern islet is 1.3 miles distant from Tooniang ; the channel between it and Cone Island to the north is not quite 2 cables' lengths wide, with a depth of 9 and 10 fathoms ; the passage between Tooniang and Cone Island is the same breadth, but crooked, and has only  $2\frac{1}{2}$  fathoms at low water ; the best anchorage will be found off the south-west point of Cone Island in 7 and 8 fathoms water. During the prevalence of S.-westerly winds, anchorage will be found on the N.E. side of Tooniang in 9 and 10 fathoms.

*Samun.*

39. The channel between Samun and Single Island is 1.8 miles ; the latter is even-topped, and 200 feet high.

*Acong Sixteen-feet Rock.*

40. Acong Rock is a remarkable pyramid lying 6 cables' lengths to the N.E. of Single Island, with a depth of 15 fathoms between them. N.N.E.  $\frac{3}{4}$  E. 1.1 miles from Acong, on which bearing it is in one with the S.E. point of Single Island, there is a rock with 16 feet upon it at low water. The Cone Island bears N.W. by W.  $\frac{3}{4}$  W. from it, and is in one with a remarkable gap in Tooniang ; it is so steep all round that there was great difficulty in finding it.

41. N.E.  $\frac{1}{2}$  E. from the north point of Tooniang lie the Middle *Middle Rocks*. Rocks which are just awash at high water ; from them Acong bears S.  $\frac{3}{4}$  W., Bate Island, off the east point of Bias Bay, N.N.E., and Lokaup Island in Bias Bay, N.W. b. N. 4 miles. S. W. from them 3 cables' lengths is a reef which breaks only at low water ; its marks are, the east end of Cake Islet (on the east side of Lokaup) is in one with the Pillars, bearing N. b. W.  $\frac{3}{4}$  W.

42. The channel between Tooniang Island and Teyih Point, *Bias Bay*, the west point of Bias Bay, is  $1\frac{1}{2}$  miles wide ; both shores are steep-to, with the exception of the reef already mentioned as lying off Peak Rock near Tooniang Island (see article 37), and a rocky ledge stretching south-westerly from the first point east of a remarkable white rock on the north shore. The hills on this side attain an elevation of 2,600 and 2,800 feet.

43. Lokaup Island, off the south end of which there are *Lokaup Island* some pyramidal rocks, bears N. b. E. 6 miles from Tooniang ; the distance between it and the west point of Bias Bay is 3 miles, with a depth of 9 fathoms ; about it are 6 islets, 3 on the east and 3 on the west side ; it is 1.9 miles long, and nearly separated in two places ; the highest part is near the south end, being 330 feet above the sea ; and anchorage will be found on either side of it, according to the prevailing winds. The north islet of the Lokaup group is remarkable from its two square pillars.\*

44. The entrance to Typoong harbour is 6 miles W.  $\frac{1}{2}$  S. *Typoong Harbour*. from the north end of Lokaup. On the northern shore of the entrance there is a smooth conical hill, off which a shoal commences, extending 5 cables' lengths from the shore ; the southern shore, which is steep-to, must therefore be kept on board. Vessels drawing more than  $2\frac{1}{2}$  fathoms should not proceed farther westerly than the third point on the south side, as the bottom of the bay is shoal. The walled town of Typoong is on the northern side of the harbour, which will be found a very secure anchorage, except with easterly winds, when the anchorage under Lokaup Island should be preferred.

45. A mile to the northward of the Pillars is Middle Group, consisting of six islets ; Green Island, the southern- *Middle Group*

\* Hy. M'Ausland, Acting Master, H.M.S. Reynard, 1850, states, that there is a reef off the west end of the small island south of the Pillars Rock in Bias Bay.

most, has an islet off its west end; and to the northward, three quarters of a mile, Reef Islet, to the S.E. of which there is a reef that breaks at low water. Its centre bears from Green Island N. by E.  $\frac{1}{2}$  E., and from the summit of Reef Islet S.S.E.  $\frac{3}{4}$  E. There is also another rock awash at low water, north 3 cables' lengths from Reef Islet; when on it, the summit of Red Islet bears E.  $\frac{1}{2}$  S. And there is a third rock, N.  $\frac{1}{3}$  W. 1.2 miles from Reef Islet and N.W.  $\frac{1}{2}$  N. from Red Islet.

*Harbour Group.*

*Twins.*

*Shoal Island.*

*Narrow Island.*

*Round Island.*

*North Cone.*

*Tree-a-top.*

*Big Island.*

46. Harbour Group, of nine islets, are not quite a mile to the north of Middle Group, the southernmost of which are the Twins; N.E. from these 2 cables' lengths, is Shoal Island, having rocky ground extending northwesterly from it 3 cables' lengths, on which there are only 3 feet in some places; Shoal Island is separated from Narrow Island by a channel  $3\frac{1}{2}$  cables' lengths wide; should it be used, the shore of the latter must be kept on board to avoid the shoal just mentioned. Narrow Island is 7 cables' lengths from N. to S., and 2 from E. to W. Round Island lies rather more than 2 cables' lengths north of it, with a depth of 5 and 6 fathoms between them; to the north of it, 2 cables' lengths, a flat rock is nearly level with the water's edge. N. b. W. 6 cables' lengths from Round Island is the North Cone, a conical rock surrounded by reefs; vessels wishing to anchor to the west of Narrow Islet will find this the best channel to enter by.

Westerly,  $2\frac{1}{2}$  cables' lengths from the Twins, is Tree-a-top, and to the west of it, 5 cables' lengths, a sugar-loaf shaped island, forming also a good channel to enter inside the group.

To the westward of Sugar Loaf is Big Island; off the north face of which is a small islet, and farther north a flat rock, with a reef, which shows only at low water; when upon it the highest part of Narrow Island bears S.E. by E., and Nobby Reef N.E. by E. To the N.W. of Big Island is Sand Patch, a low rock surrounded by sand; but between it and Big Island there are  $3\frac{1}{2}$  fathoms water. On the south side of Big Island also there is a rock awash at high water.

The channel to the westward, between Big Island and the main, is 7 cables' lengths wide, but there is a reef nearly in mid-channel which will show at half tide, bearing W.S.W.  $\frac{3}{4}$  W. from Sugar Loaf, and N.W. by N. from Green Island.

Dumbell Bay runs back westerly from Big Island 6 miles, the *Dumbell Bay*. general depth of water being 3 fathoms.

47. Off the eastern point of Bias Bay several rocks render the channel between them and the land unsafe, but that between these rocks and the one S.E. of Bate Island may be used; it is 8 cables' lengths wide, with a depth of  $4\frac{1}{2}$  and 5 fathoms. Bate Island is 8 cables' lengths north and south, and 5 *Bate Island*. east and west; besides the rock 3 cables' lengths S.E. of it, mentioned above, there is another rock awash at high water, 6 cables' lengths to the N.N.E. of it; the bearings from which are the south point of Lokaup Island S.W. by W.  $\frac{1}{2}$  W., and rock S.E. of Bate Island S. by E. From Bate Island the coast trends northerly for 11 miles; the first islet on this shore *Triple Island*. is Triple, 2·2 miles from Bate Island.

48. Anchorage in the N.E. monsoon will be found between *Anchorage*. Bate and Triple Island; the channel between them and the main is 6 cables' lengths wide, with a depth of 3 fathoms, but a cable's length from its eastern shore is a small rock which is never covered.

49. Six and a half miles north of Triple Island is Tsang, a *Tsang*. low flat islet with a smaller one S.E. of it; the passage between them and the main is a mile wide, with a depth of 2 fathoms; but rocks extend from the shores on each side of the passage.

50. To the north of Tsang, the coast takes a turn to the *Fanlokong*. eastward, forming the harbour of Fanlokong, the entrance to which is  $1\frac{1}{2}$  miles wide, with a depth of 4 fathoms; at the distance of 4 miles from Tsang the depth decreases to 3 fathoms, but the water extends 2 miles farther. The village of Fanlokong is on the northern shore.

51. Pagoda Island bears from Tsang N.W. b. W.  $\frac{3}{4}$  W. 4 *Pagoda Island*. miles, the depth of water varying from  $4\frac{3}{4}$  to  $2\frac{1}{4}$  fathoms, shoaling towards the former, which is 3 cables' lengths from the shore, with a depth of 9 feet inside of it: to the W.S.W. of the island are some rocks.

52. Mendoza Island bears from Bate Island S. by E. 8 miles; it is 2·8 miles in circumference, and will afford shelter from *Mendoza Island*. a S.W. wind on its northern side; on its western side lies a small islet, the channel which separates them being a cable's length wide, with 9 feet water.

53. The Island of Tsincoe lies 6 cables' lengths to the north *Tsincoe*.

of it, the depth of water between the two being 11 fathoms ; there is a remarkable cleft in its centre.

*Harlem Bay.*

54. Harlem Bay will be found a very secure anchorage in the northern monsoon ; the distance between Mendoza Island and Fokai Point is 2·6 miles ; between the two, and 6 cables' lengths from the latter, is Midship Rock, 10 or 12 feet above the sea ; it may be passed on either side. A good berth will be found to the north of Hebe Islet, where a vessel may choose her own depth of water, this islet is flat-topped, 70 feet high, with a ledge of rocks which covers at high water, and extends 3 cables' lengths to the north-eastward. On the western foot of the Fokai Hills stands a fort, and a tall chimney on the hill over it : to the north of the fort there is a creek, into which junks can get at high water ; and which stretches northerly along the sandy isthmus.

*Hebe Patch.*

55. S.W. by W. from Hebe Islet lies a rocky patch of  $3\frac{1}{2}$  fathoms ; and bearing north from Midship Rock.

*Fokai Point.*

56. Fokai Point is connected with the main by a low sandy isthmus. The highest part of it is 670 feet high, and the summit appears to be an artificial mound ; on the hill over its S.W. point stands a large fort. On the east side of the isthmus lie three rocky islets ; and E. b. N., 8 cables' lengths from the northernmost of them, a reef shows at low water ; the east end of Fokai Point bears S. by W.  $\frac{1}{2}$  W. from it, and the Pauk Piah Rock E.S.E.

*Coast Islet.*

57. From Fokai Point the coast runs N.E. by N. towards Ross Head, and at the distance of 9 miles is Coast Islet, which is 4 cables' lengths from the shore ; shoal water, over a rocky bottom, extends from it southerly 6 cables' lengths. Here there is an opening a cable's length wide into the extensive sound of Samchow, with the channel close to a narrow cliff on the southern shore, and carrying 5 and 6 fathoms, but in strong easterly winds the sea breaks across it. The entrance bears W.N.W. from Siting Island, and from Harlem Peak E.  $\frac{1}{2}$  N. ; this peak rising 2,070 feet above the sea, forms a conspicuous landmark. S.S.W. from Coast Islet lies a sunken rock ; from which Siting Island bears East 6 miles, and Harlem Peak N.W.  $\frac{1}{2}$  W.

*Samchow Inlet.* Commander P. Cracroft, in H.M.S. Reynard, who visited Samchow Inlet in chase of some pirates, and made an eye-sketch of it at the time, says, "The mouth of the inlet is very little wider than the breadth of a ship ; there is also an inner

bar with an equally narrow passage ; and across both these bars the tide sets with a velocity of 5 knots. The depth in the channel varies from 6 to 8 fathoms, and deepens to 10 fathoms above the upper bar, where there is ample room for a vessel to swing ; but such is the intricacy of the navigation that a personal examination should be made, and the state of the tide carefully ascertained, before attempting the entrance."

Pedro Blanco is in  $22^{\circ} 19' 12''$  N. and  $115^{\circ} 6' 9''$  E. When *Pedro Blanco.* bearing north it appears as two ; the summit is white ; it is bold to approach, having 20 fathoms close outside of it, and 18 to the northward, decreasing gradually to 13 fathoms in the neighbourhood of the Pauk Piah.

58. Pauk Piah is a flat rock 4 or 5 feet above high water, *Pauk Piah.* from which bears W.  $\frac{1}{2}$  N. the summit of Fokai 7 miles ; S. by W. from the Pauk 2·4 miles, lie the two Whale Rocks, upon which the sea breaks at times. When on them, Fokai Fort Point is in one with the summit of Bate Island, bearing W.N. W.  $\frac{3}{4}$  W., and the summit of Mendoza Island bears West ; they rise abruptly from 12 fathoms.

59. In the month of April the current in this neighbourhood *Current.* sets constantly to the westward, increasing its velocity upon the flood, but never exceeding a knot per hour.

60. Tungting and Siting are two rocky islets about 50 feet high, lying S.E.  $\frac{1}{2}$  S. and N.W.  $\frac{1}{2}$  N. from each other  $1\frac{1}{2}$  miles apart ; there are sunken and detached rocks lying around them both, and the depth of water in their neighbourhood is 9 fathoms. From Siting the summit of Fokai Point bears S.W. by W.  $\frac{3}{4}$  W. 11·1 miles, and Pauk Piah S.S.W.  $\frac{1}{3}$  W. 6·7 miles. N.W. by W. from Siting there is a reef which generally shows. Hat Island bears *Hat Island.* from it N.E.  $\frac{1}{2}$  E. ; Harlem Peak W.  $\frac{1}{2}$  N. ; Mace Point, open north of Hat Island, bearing about N.E.  $\frac{3}{4}$  E., will lead to the north of it. There is also the Single Rock, which breaks only at low *Sing'le Rocks.* water or when there is a heavy sea, and from which Siting Island bears S.W. by W.  $\frac{1}{2}$  W. ; Tungting S.W. by S., Hat Island N. by E. and Harlem Peak W.  $\frac{1}{4}$  N. Vessels had better keep to the eastward of Tungting and Siting, as they will experience a heavier sea in this corner of the bay.

61. In Honghai Bay, N.E.  $\frac{1}{2}$  E.,  $8\frac{1}{2}$  miles from Siting, lies the *Honghai Bay and Island.* island of Honghai ; it is 5 cables in length from E. to W., and 3 from N. to S., and will afford shelter on its northern side from

*Honghai Rocks.* southerly winds. S.S.E. from its summit, which is 240 feet high, there are two rocks, which show at low water; they lie 3 cables' lengths from the shore, and from them the S.W. point of Honghai bears N.W. b. W.  $\frac{1}{2}$  W, being in one with the south end of Inside Island, and the east point of Honghai in one with the highest part of Mace Point, bearing N. by W.

*Hat Island.* 62. Hat Island is a peaked rock  $2\frac{3}{4}$  miles to the west of Honghai; it is called by the Chinese Ke-sin-she, which means a fowl's heart, which it is more like than a hat; there are rocks about it.

*Shoal Bay.* 63. Shoal Bay lies 3 miles to the N.N.E. of Honghai Island; the entrance to it is 2 miles across, and, within the heads, less than 3 fathoms will be found. From its N.E. part a channel, with 6 feet only at low water, communicates with Hiechechin Bay.

*Inside Island.* 64. Inside Island lies 5 miles to the N.W. of Honghai; it is 460 feet high, a mile long from N. to S., and but little more than a cable's length wide; off its S.W. end, 3 cables' lengths, there are detached rocks; and in the bays E. and W. of it no more than  $2\frac{1}{2}$  fathoms will be found at low water; there is usually a long ground swell here, rendering it advisable for vessels not to stand further into the bay than Honghai Island. West, 3 miles from Inside Island, is the embouchure of a large stream, over the bar of which there are 6 feet at low water.

*Tides.* 65. It is high water on full and change days in Honghai Bay at 10 o'clock, and the rise is 6 feet 6 inches.

*Club Point.* 66. To the eastward of Club Point (the east point of Shoal Bay) there is a rocky ledge, part of which is always above water.

*Tysami Inlet.* 67. The entrance to Tysami Inlet bears from Honghai Island E. by N. 9 miles; the channel is 5 cables' lengths wide, with  $2\frac{1}{2}$  fathoms at low water; the northern shore is shoal-to, and near the entrance are some rocks which show at low water: they are rather more than 5 cables' lengths from the shore. Tysami Mound bears from them S.S.E., and the conical hill at the back of the town E.N.E.  $\frac{1}{2}$  E. The southern edge of the channel is confined by a sandbank, which commences under Tysami Mound, extends  $1\frac{1}{4}$  miles from the shore, until its north end bears west from Entrance Head, shoals suddenly, and has but 6 feet on its edge; the north end of the sandy spit under Entrance Hill (the hill on the

south side of the entrance) in one with the conical hill at the back of the town bearing E.  $\frac{2}{3}$  N., will lead a vessel in upon the south side of the channel.

68. Tysami Mound is an artificial cone on the highest part of the hills over the S.E. point of Honghai Bay; its elevation *Tysami Mound.* is 960 feet above the sea.

69. S.E., 3 miles from Tsiech Point, on the eastern side of *Goat Island.* Honghai Bay, is Goat Island, the southernmost and largest of a numerous group; on its N.W. side there is a very good roadstead in the northern monsoon. S.W.  $\frac{1}{2}$  W. from its summit, and S.S.E.  $\frac{1}{2}$  E. from Tysami Mound, lies a dangerous rock which shows only when the tide is low and the wind high. The channel between Goat Island and the main is not navigable. On the main, a mile inland, stands the walled town of Tsieching.

70. S.E. b. E. 3 miles from Goat Island, lie the Reef Islands *Reef Islands.* E.  $\frac{1}{2}$  N. a mile from the former, and N.W. by W. 2 miles from the north end of the latter, there is a rock on which the sea breaks at low water; the southern islet of the group is the largest and reefs extend a cable's length southerly from its east end. Vessels may pass between them, and some rocks awash 1.8 miles to the north, as there is a depth of 7 and 8 fathoms, but bearing in mind that the shoal water extends rather more than 2 cables' lengths to the north of them; the north end of the danger bearing W.  $\frac{1}{2}$  S. from Chelang Point. Between the rocks awash and the north shore, vessels should not pass.

Chelang Point bears E.N.E.  $\frac{3}{4}$  E. 5 miles from the group, and *Chelang Point.* terminates in a rock 80 feet high, which is separated from the main by a rocky channel. On the western extremity of the headland there is a fort, and to the northward of which a bay, where a small vessel may find shelter in the N.E. monsoon; but there is a sunken rock, having a foot over it at low water, bearing N.W. b. W.  $5\frac{1}{2}$  cables' lengths from the fort. When on this rock, the summit of Chelang Point bears S.E.  $\frac{2}{3}$  E., and is in one with the southern rock off the Fort Point; Flat Rock bearing S.W.  $\frac{1}{4}$  W. Flat Rock lies W. b. N. 1.7 miles from Chelang *Flat Rock.* Point, and has a small sunken rock N.W. from it, and west from the fort.

71. N.E.  $\frac{1}{2}$  N.  $4\frac{1}{2}$  miles from Chelang point, is Kinyu or *Kinyu Islet.* Kemsue, a rocky islet 5 cables' lengths in extent, in a N.E. and S.W. direction; its highest part being to the N.E., under which stands a high rock; the shores are bold-to, but the islet

is too small to afford shelter. The channel between it and Chechin Point is  $1\frac{1}{2}$  miles wide with 7 and 8 fathoms; but off the point a large white rock is surrounded by several reefs.

72. Paukshao Bay will afford good shelter, unless the wind comes to the eastward of south, there being a depth of 5 fathoms while the point is left to the westward of south.

73. Paukshao Point\* forms the western, as Tongmi Point does the eastern limit of Hiechechin Bay, bears E.N.E. 14 miles from Chelang Point. Near Tongmi Point there is a remarkable conical hill, which, with the islets Tungki and Siki, render this side of the bay easy to recognise; the conical hill bears N.W.  $\frac{3}{4}$  N. 2.3 miles from Tungki, which is about 18 feet above the sea, some detached rocks lie on the eastern side of the islet, and some reefs awash at low water, half a cable's length from its N.W. side. The channel between it and the main is a mile wide, with a depth of 9 to 12 fathoms. From Siki Rock, Tungki bears E.N.E. 3.2 miles, and the conical hill N.E.; it is about 80 feet high, rises abruptly and is cleft at the summit; between the two rocks the depth of water is 11 and 12 fathoms. A mile north of Tungki, and east 0.7 of a mile from Tongmi Point, there is a cluster of rocks nearly level with the water's edge.

74. West from Chino Peak, there is a reef of rocks, extending 4 cables' lengths from the shore, the outermost of which will not show at high water, unless there is a considerable swell; when upon it Tungki bears S.E.  $\frac{1}{2}$  E., Siki S.S.W., and the East White Stone in the north end of the bay is in one with Round Hill, bearing N.N.W.  $\frac{3}{4}$  W. In Chino Bay there is a fort and small village, opposite to which the water is shoal, the two fathoms line of soundings extending 5 cables' lengths from the shore. The best anchorage is farther to the northward, about east of the Yellow Stone, which is the southernmost of all the rocks in the N.E. part of the bay, in a depth of  $3\frac{3}{4}$  fathoms at low water. The walled town of Keishiwei lies E. b. N. 3 miles from the Yellow Stone, and may be seen over the low land from this anchorage; there is a creek leading up to it which will admit of junks at low water.

Between the Yellow Stone and the Rocks  $7\frac{1}{2}$  cables' lengths N.N.W. of it, there is a channel with  $4\frac{1}{2}$  fathoms, but vessels are recommended not to approach that part of the bay lying to the northward of the Yellow Stone, as there are several

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\* See sheet III. of the East Coast of China.

sunken rocks, one of which bears N.W. b. W.  $\frac{1}{2}$  W. 1·4 mile from the Yellow Stone, on which bearing it is in one with the northern end of Chino Bay hills ; from it the eastern *Eastern White Stone*, White Stone bears N.E. b. E.  $\frac{2}{3}$  E. ; West White Stone, *West White Stone*, N.W.  $\frac{1}{2}$  W. As this rock lays to the south-westward of all *Stone*, those above water, care must be taken to avoid it, in working up the bay ; the East and West White Stones will be known by their being the largest of the group.

Vessels drawing less than 18 feet may stand into the bay to the northward of the West White Stone, where they will find from  $3\frac{1}{2}$  to  $2\frac{1}{4}$  fathoms.

The village of Kinsiang lies in the N.E. bight of the *Kinsiang* bay, immediately under Round Hill, and to the northward of Kinsiang Point there are not more than 3 fathoms at low water.

In this northern bight there are the mouths of two rivers, with bars of less than 9 feet. The western one communicates with Honghai Bay, and affords a passage for boats and even small junks.

75. From Tongmi Point to Cupchi Point the distance is *Cupchi Point*, about  $15\frac{1}{2}$  miles, the coast trending E.N.E.  $\frac{1}{2}$  E. In the interval, at the distance of  $4\frac{1}{2}$  miles, come the Black Rocks, with a square white rock on the S.W. side of the point, and at  $1\frac{1}{2}$  cables' length N.W. of it, a sunken rock. This bay is not deep enough to afford shelter.

76. Half way between those points is the River Hutung, *Hutung*, which issues to the westward of Hutung Point, with a fort on the south bank, but it has only 6 feet water on the bar. S.S.E.  $1\frac{1}{2}$  miles is a small islet, surrounded by reefs and detached rocks, one of which to the eastward is of a curious shape, from which it has obtained the name of Figure Rock. *Figure Rock*. At 3 miles to the eastward of Hutung Point the hills come down to the beach, and on one of their peaks is a conspicuous knob. A mile from the beach lies a flat rock with sunken dangers between it and the main. There is a rock awash to the S.E. of it.

77. Cupchi Point rises to the height of 210 feet, carrying *Cupchi*, several rugged boulders, and near the sea there is a dilapidated fort. South from the point,  $1\frac{1}{2}$  miles, Turtle Rock shows *Turtle Rock*, itself 14 feet above the sea, having inside of it two islets, and four patches of rock ; nevertheless, the junks pass between it and the rock next to the northward, though sunken rocks lie to the westward of both, and much discoloured water,

which, however, helps to detect them. Between the islets and the point, the channel is 2 cables' lengths wide, and the bottom rocky and uneven. From the point to the westward of the fort a ledge of rocks extends 2 cables' lengths, its outer end breaking at low water. Vessels will find good anchorage during the N.E. monsoon in which they may choose their depth, to the south of the Shag Rock ; this rock is half a mile from the shore and 3 feet above high water; it has  $2\frac{1}{2}$  fathoms around it except on its S.S.E. side, where there is a projecting reef. Opposite to it a fort stands on the right bank of a river leading from the walled town of Kiahtsz. The town is  $1\frac{3}{4}$  miles from the fort, having to the southward of it a pagoda two stories high. On the bar of the river there are 9 feet, but the channel over it is both crooked and narrow. Nearer the entrance there is a second fort, and on the sandy point opposite a martello tower.

*Black Mount.*

78. Four and a half miles from Cupchi Point, and half a mile from the beach, the Black Mount rises as described by Ross, 230 feet out of a red sand down. Reefs extend from the shore half a mile along this part of the coast.

*Tungao.*

79. The village of Tungao is built in a bight of the coast N.E. b. E. 16 miles from Cupchi Point, the intervening district being low and sandy. On the bar of the river west of the village, the sea breaks heavily at low water, and outside the bar the water shoals suddenly, so that vessels should not bring it to bear to the eastward of N.E.  $\frac{1}{2}$  N., when within  $1\frac{1}{2}$  miles of the fort ; it will then be found a good roadstead in northerly winds. There are two pagodas in the neighbourhood, one on the low land near the river's mouth; the other on the hills 2 miles in shore.

*White Rock.*

80. S.E. b. E.  $2\frac{1}{2}$  miles from Tungao is a white rock, which forms a good leading mark along the coast, and half way between them a creek with a fort. The coast here consists of low rugged hills, with sandy bays and several fishing villages, the boats belonging to which are very numerous : their small size, as compared with those that frequent Cupchi and Chinhae, would help, in a fog, to indicate the immediate part of the coast.

*Breaker Point.*

81. Breaker Point is 7 miles to the eastward of the White Rock. Two miles to the westward of Breaker Point is a small islet having a flat rock to the S.E. of it, part of which is

always uncovered. W.  $\frac{1}{2}$  S. from this flat rock, distant 8 cables' length and south from the islet, lies a sunken rock on which the sea seldom breaks. The bay formed by Breaker Point, Flat Rock, and the islet being very foul, cannot be recommended as a place of shelter. There is a black dome-shaped hill rising 280 feet from a red sand drift on the point, from whence the hills trend to the northward and westward, dipping suddenly at their extremity. At the end of the Point is a rocking stone, and westward of it a small islet; a fort stands on the point within. The coast hereabouts, as its name insinuates, has several detached rocks off it, and should not be approached within half a mile.

82. The entrance to the creek leading to Chinhae or *Chinhae or Tonglae*. Tonglae is 5 miles in a north-easterly direction from Breaker Point. On the east side of its entrance is a fort, where under it indifferent shelter might be found in the N.E. monsoon by a vessel of 12 feet draught, but sunken rocks abound along this portion of the coast, one of which is 6 cables' length from the land. When on it the bearings are Fort, N.W. b. N.; Rocky Point, N. b. E.  $\frac{3}{4}$  E. Rocky Point is low and bears *Rocky Point*. N.E.  $1\frac{1}{2}$  miles from Chinhae Fort; from hence the coast trends northerly for  $4\frac{1}{2}$  miles, joining a headland with reefs running off to the south eastward,  $2\frac{1}{2}$  cables' length.

83. From this headland Haimun Point bears N.E.  $\frac{1}{2}$  E. 7 *Haimun* miles; on the highest part of the hills over it are two peaks, on one of which stands an artificial mound 590 feet above the sea. Parkyns Rock, on which the sea breaks at low water, *Parkyns Rock* lies 9 cables' length to the southward of Haimun Point. When on this rock the bearings are, the artificial mound over Haimun Point (mentioned above) N.  $\frac{3}{4}$  E.; Cape of Good Hope, N.E. b. E.  $\frac{3}{4}$  E.; Rocky Head at the entrance of Haimun River, N.W. This Rocky Head in one with the west peak of Pagoda Range, bearing N.W.  $\frac{1}{4}$  N., will keep a vessel to the southward of the rock; there is a passage between it and the main.

A rocky ledge with  $2\frac{1}{4}$  fathoms on its southern end extends *Rocky ledge*: 6 cables' lengths from Fort Point. The leading mark given above for avoiding the Parkyns Rock will place a vessel on its southern edge with the fort bearing N.E. There is also a rock awash at low water bearing W.  $\frac{3}{4}$  N. 5 cables' lengths *Rock awash*:

from the fort, the mark for which is the west peak of Pagoda Range (mentioned above) in one with a large stone in the centre of the first sandy beach to the eastward of Rocky Head bearing N.W.  $\frac{1}{4}$  N. The channel between this rock and the western shore of the bay is 4 cables' lengths wide.

*Another rock awash.*

There is another rock showing at low water, the bearings from which are the southern end of Haimun Point E. b. S., Rocky Head N.E.  $\frac{1}{2}$  N., West Peak N.W. b. N.

*Haimun River.*

84. Rocky Head is on the eastern side of the entrance to Haimun river, on the bar of which there are 10 feet. The town is built on the left bank, 1 mile from the entrance. The river here turns to the westward. The land being low to the northward, a canal communication with the Shanlau estuary will most likely be found.

*Pagodas.*

There are three pagodas in the neighbourhood of Haimun, two of which are on the hills, and can be seen in clear weather from Namo Island, the other is on the low land.

*Cape of Good Hope.*

85. From Haimun Point to the southern extremity of the Cape of Good Hope the distance is about 9 miles, and the bearing E.N.E.  $\frac{1}{2}$  E.; the detached rocks lying to the N.E. of Haimun Point for  $3\frac{1}{2}$  miles renders it advisable not to close this part of the coast nearer than half a mile, until vessels are beyond that distance, when the sandy beach connecting the two bays is steep-to. On the southern side of the Cape will

*Anchorage in the N.E. Monsoon.*

be found a secure anchorage in the N.E. monsoon; the smoothest water is in the outer sandy bay near a fort and a large tree. Sunken Rocks extend a cable's length from the Fort Point; otherwise the bay is clear and the lead the best guide. On the western side of the bay is a remarkable peaked rock; a mile and a half to the N.W. of it is the entrance to a creek communicating with the Shanlau estuary and the river Han, having 7 feet water over the bar, which is barely a cable length across, and is defended by a fort; this creek makes the Cape of Good Hope an island. Reefs extend south-westerly from the fort 3 cables' lengths to a rock awash at high water, rendering the channel impassable to the large fishing boats at low water, who at this time of the tide leave the rock to the eastward and

*In the event of wreck.*

pass between it and two islets off the fort. In the event of a ship being wrecked on the coast, and the crew wishing to reach the dépôt vessels at Namo Island, this would be the best route,

as few boats could live in the tide race off the Cape of Good Hope.

The Cape is in  $23^{\circ} 14' N.$  and  $116^{\circ} 47' E.$ ; it is 480 feet *Position of the Cape of Good Hope.* above the sea, appearing like a dome; its eastern face is *Hope.* steep-to. In the bay to the northward of it is Green Islet, having a patch of rocks between it and the Cape. From the Cape the west point of Namo Island (Clipper Point) bears N.E. b. N.  $14\frac{1}{2}$  miles, and the S.W. end of the Lamock Islands (Boat Rocks) E.  $\frac{1}{2}$  S.  $24\frac{1}{2}$  miles.

86. Northward from the Cape 3 miles and 5 cables' lengths *Coast line north of the Cape.* from the shore is Bill Islet, 56 feet high. S. b. E. 4 cables' lengths from Bill Islet is Squat Rock, with a reef 2 cables' lengths to the west of it, showing at low water. Rocks extend from the points on the main opposite to these Islands, and in the channel there are 3 fathoms water. From Bill Islet the coast trends N.W. b. N. 3 miles to Sugar Loaf Island, from the east point of which there is a reef extending one cable's length.

87. Hence the coast trends to the westward, being the *River Han.* entrance to the river Han, on the bar at the entrance of which were  $2\frac{1}{2}$  fathoms at low water. Vessels intending to enter it should steer so as to pass 2 cables' lengths to the eastward of Double Island, which bears N.W. b. N. three-quarters of a mile from the Sugar-Loaf; having passed which, the course is west for the town of Shantau, built upon the north bank of the river, and 4 miles from Double Island. Half a mile to the S.E. of the town there is a depth of 8 fathoms, and at low tide the water in the rainy season is fresh. Shantau is the port of Chinhæ, from which it is distant about 2 miles. The country in the vicinity is highly cultivated, sugar-cane and tobacco growing luxuriantly.

88. The channel between Double Island and the main to the *Joachim Bank.* north is 5 cables' lengths wide, the mud drying 5 cables' lengths from high water-mark on the shore. Joachim's Bank is an extension of this flat south-easterly, its southern edge in two fathoms bearing E. b. S. from Double Island  $2\frac{1}{2}$  miles. Brig Island open of the east end of Fort Island bearing N.E.  $\frac{1}{2}$  N. will lead to the eastward of it in 14 feet.

89. There is a pagoda 260 feet above the level of the sea on *Pagoda.* an isolated hill near the coast, which when first seen appears like an island, the land in its vicinity being very low. It bears N.E. b. N. from Sugar Loaf Island distant about  $6\frac{1}{2}$  miles.

*Fort Island.* 90. Fort Island, with a fort on the table-land at its western end, lies E.N.E. nearly 2 miles from the Pagoda. The channel between it and the main is shoal.

*Brig Island.* 91. Brig Island (so called from a rock at its southern extremity which appears like a brig when seen in an east or west direction) lies N.E.  $\frac{3}{4}$  E. 4 miles from Fort Island, the depths varying from  $2\frac{1}{2}$  to 4 fathoms, the most water being towards the former.

*Knolls at the western entrance to Namoa Island.* 92. S.E. b. E. from the Pagoda  $4\frac{1}{2}$  miles, with the west end of Namoa Island in one with Breaker Island bearing N.E.  $\frac{3}{4}$  N., there was formerly a shoal with only 11 feet water; at present, August 1844, there are several knolls, none of which however have less than 13 feet. The following are their bearings:—

The west point of Namoa Island in one with Breaker Island bearing N.E. b. N. is the mark for three of the knolls; from the westernmost knoll the Pagoda bears N.W. b. W., this has a depth of 13 feet at low water; from another W.N.W. with 17 feet; a third the Pagoda West with 18 feet. With the Pagoda bearing W. b. N., and the west point of Namoa Island N.N.E. there is a knoll which has only 14 feet. All these are sand, and will probably be found to shift, owing to the freshes from the river Han.

*Baylis Bay.* 93. Baylis Bay is the first bay on the north side of Namoa Island to the eastward of Clipper Point; there is a fort on the ridge to the westward of it, and an outwork at the beach. There are three knolls off this bay, bearing from the upper fort as follows: first, W. b. N. rather less than 1 cable's length from the Fort Point, having only 5 feet water over it; second, N.W.  $\frac{1}{4}$  N. and 1 cable's length from the point, with 9 feet on it; third, N. W.  $\frac{3}{4}$  N. and  $2\frac{1}{2}$  cables' from the same point, having 11 feet at low water; when upon this one the summit of Brig Island bears N. W.  $\frac{1}{2}$  N., Fort Island (summit) W.S.W.  $\frac{2}{3}$  W. During the northern monsoon the Opium vessels anchor off this bay, remaining here from October until May. In the other monsoon they lie  $1\frac{1}{2}$  miles further to the eastward, when the swell setting round Clipper Point renders that anchorage inconvenient.\*

\* With the exception of a few narrow passages of about 90 or 100 feet wide, the channel inside Namoa Island is staked across; but vessels very soon shoot through them.—*Remark Book, H.M.S. Reynard, 1850.*  
*Henry M'Ausland, Master.*

94. From Baylis Bay a bank commences which extends  $2\frac{1}{2}$  miles *North coast of Namo*  
along the N.W. coast of Namo ; its greatest distance from the shore is 4 cables' length, which is opposite to Stewart's House ; the lead gives no warning, and there are only 9 feet upon its edge. At springs the tide runs at the rate of 4 knots, *Tides*. the ebb coming from the eastward ; it is high water on full and change days at 11 o'clock ; rise 7 feet. These two anchorages must be considered more as safe roadsteads than harbours, as from the velocity of the tide and the fetch for the sea, laden boats would frequently have much difficulty in passing to and fro. Water may be procured with great facility *Water, &c.* and there was no difficulty in obtaining fresh provisions.

95. The Folkstone Rock has only 5 feet over it at low *Folkstone Rock*. water ; when upon it the Brig Rock is in one with the N.W. head of Fort Island, bearing S.W. by W.  $\frac{1}{2}$  W. Coffin Island (the largest of a cluster of islets 3 miles north of Brig Island) N.W., and the flagstaff at Stewart's House in one with a whitewashed rock at the back of it bearing S. b. E. The leading mark, Brig Rock, in one with the north end of Fort *Shoals*. Island will keep a vessel not only clear of the Folkstone, but also of the shoal which extends nearly all the way from Brig Island to Breaker Island,\* the latter (a peaked rock with several others round it, which must not be approached nearer than 2 cables' lengths upon its western side) bears from Brig Island N.E. b. E.  $\frac{2}{3}$  E. ; to the eastward of Breaker Island, shoal water extends a great distance from the northern shore, the southern *Shoal Bay*. edge of the shoal in 3 fathoms bears east 3 miles from it.

Opposite to Breaker Island, the coast line of Namo Island trends to the S.E.-ward, forming Shoal Bay, in which there are two islets and several rocks ; the land at the bottom of the bay is low, and only 1 mile across to the south side of the island.

96. Nangaou Bay is 7 miles to the eastward of Breaker *Nangaou Bay*. Island. In the bottom of the bay stands a walled town, the residence of the magistrate of the district. Vessels drawing less than 18 feet may stand into this bay until the Pagoda bears E. by N. ; there is a considerable swell in the bay with a north-easterly wind. During the northern monsoon, the entrance of Challum Bay will be found a better anchorage,

\* This mark will certainly take a vessel clear, but very close to Folkstone Rock.

and from Challum Bay vessels are in a better position to avail themselves of the land wind, which usually draws to the northward in the morning.

*Challum Bay.* 97. To enter Challum Bay, pass within a mile to the westward of Middle Islet, which is a barren rock bearing N.E. b. E. 5·3 miles from Breaker Island. The anchorage is between Entrance Island and Middle Islet, in from 6 to 3 fathoms; in running in, steer for the west point of Entrance Island, and beware of the starboard shore, as the water shoals suddenly on that side, and there is a sand-bank 5 cables' lengths to the southward of the west end of Challum Island, showing at low water. Should vessels pass to the eastward of Middle Islet, it must be within 5 cables' lengths, as there is shoal water (11 feet) extending 9 cables' lengths from Fort Point. Under Fort Point is a rock nearly covered at high water, and also one between it and Point Difficult; otherwise the coast line here is steep-to.

*Difficult Islet.*

*Ternate Rock.*

98. Difficult Islet, lying  $4\frac{1}{4}$  miles to the E.N.E. of Middle Island is 110 feet above the sea; on the hill over the point west of it is a square fort. The Ternate Rock, with 1 foot water on it, lays E. b. N. 1·3 miles from the east point of Difficult Islet, on which bearing it is in one with the third and last sandy hill on the northern part of the range extending from Fort Point. The Pagoda Island in one with Namoa High Peak will place a vessel to the east of it.\*

The eastern point of Nangaou Bay is the north point of Namoa Island; rocks extend from its eastern face 3 cables' lengths.

*Southern Coast of Namoa.*

99. The southern coast of Namoa runs from Clipper Point nearly due east 5 miles, where there is a small bay with a pagoda upon its eastern point. This portion of the island corresponds with Shoal Bay on the north shore. South Bay, lying 4 miles to the eastward of Pagoda Bay, will afford good shelter in the N.E. monsoon; rocks extend  $1\frac{3}{4}$  cables' lengths southerly from the point. Vessels drawing 18 feet may run into the bay until the end of the point bears S.E.

*Crab Islet.*

100. Five and a half cables' lengths to the S.E. of the point is a low flat islet called Crab Islet by the Chinese, in the channel between which and Namoa there is foul ground. One and a third

\* This mark will lead a vessel very close.

mile to the eastward of South Bay is a bold bluff (the southern-most point of the island), it has three tall chimneys on it.

101. The Lamock Islands are four in number, with two *Lamock Islands*. patches of rocks extending altogether in a N.E. and S.W. direction  $7\frac{1}{2}$  miles. At the S.W. end of the group are two square rocks about the size of boats, having several reefs between them. The White Rock, lying N.E. 1·4 miles from them, is sufficiently large to afford protection to boats. The distance between the White Rock and High Lamock is 3 miles, with a safe channel, the depth of water varying from 8 to 14 fathoms. High Lamock is 250 feet above the sea, and thickly covered with brushwood. The channel between it and East Lamock is 1·3 mile across, about the centre of which there is a rock, with a reef, showing at low water, extending southerly from it. The three northern islets lie close together; the northern, which has a pyramid on it is without vegetation. The course from the southern end of the Lamocks to the west end of Namoa Island is N.W.  $\frac{1}{2}$  W.,  $22\frac{1}{2}$  miles, and from the N.E. end of them, the east point of Namoa Island bears N.W.  $13\frac{1}{2}$  miles, and the south-eastern Brother N.E. by E.  $25\frac{1}{4}$  miles.

102. Between the Lamock Islands and Namoa Island are four *Islets between the Lamock Islands and Namoa.* islets; the northernmost of which, from its appearance called Dome Island, is the highest. The two southern islets lying east and west of each other are called Ruff Rock and Oeste Rock; to the southward of Ruff are Dot and Sul Rocks; there is a reef extending  $\frac{1}{3}$  of a mile to the southward of Sul Rocks. The east end of Oeste Rock in one with the east end of Plat Island bearing N.W., will clear it. Plat Island is flat-topped, and it is lower than Ruff or Oeste Rocks.

103. Sinta Rock with 2 feet upon it at low water, bears *Sinta*, S.E.  $\frac{2}{3}$  S., 4·4 miles from Dome Islet. When on it the S.W. end of Ruff Rock is in one with the summit of Plat Island, bearing W.N.W. The east point of Namoa Island bears N. b. W., and High Lamock Island E S.E.  $\frac{1}{2}$  E. from it.

Yeng Rock is awash at low water; when on it the north *Yeng Rock.* end of Crab Islet (on the south face of Namoa Island) is in one with the S.W. point of Namoa, bearing W. b. N. Dome Islet bears W.S.W.  $\frac{2}{3}$  W., High Lamock S.E.  $\frac{2}{3}$  S., and the east end

of Namoa N.N.W.  $\frac{1}{2}$  W. The north end of Namoa, seen clear of the east point, will lead a vessel to the northward of it.

*Half-tide Reef.* There is another patch of rocks which show at half tide, between Dome Islet and Namoa, bearing from the former, from N. b. E. to N.N.E.  $\frac{1}{2}$  E. distant one mile. Three Chimney Bluff bears N.W. b. N. from them.

*Times Rock.* Mr. Anderson, master of the Sir E. Ryan, merchant ship, states that he saw a rock (when in command of the Times schooner) to the N.E. of the Lamock Islands. He described it as "a rock awash 3 miles from the North Rock, with all the Lamocks in one;" H.M.S. Plover, however, searched for it without success.

*Chelsieu Rocks.* Chelsieu Rocks, 20 feet high, are a cluster of four rocks bearing east 7 miles from the north point of Namoa Island.

*Diou Rock.* Diou Rock bears from them N.W. b. N.  $3\frac{1}{2}$  miles; it is just awash at high water. Should high tides and smooth water prevent its being seen, the Pagoda, in Nangaou Bay, in one with Saddle Peak, on Namoa Island, bearing S.W. b. W.  $\frac{3}{4}$  W., will lead a vessel to the northward of it.

*Tides.* 104. The flood-tide enters both at the eastern and western ends of Namoa, but the tides in the neighbourhood of Nangaou Bay are not so strong as at the western end of the island. It is high water on full and change days at 11.15, and the rise 7 feet.

*General description of Namoa.* 105. Namoa Island is 12 miles from east to west, and  $5\frac{1}{2}$  miles from north to south, in its broadest part; the peaks, of which there are three (forming the most prominent land-marks in the neighbourhood), rise to the height of 1,700 and 1,800 feet above the sea; notwithstanding its barrenness, it is exceedingly populous, the fisheries affording a livelihood to the greater portion of the inhabitants.

*Shallow Bay.* 106. Six and a half miles E.N.E. of Point Difficult is a Shallow bay with a Pagoda on an island within it: the boundary line of the two provinces, Fokeen and Canton, passes through this bay.

*Chauan Bay.* 107. The west point of Chauan Bay, which is the eastern point of the bay mentioned above, has a small islet off its south end, and in the event of a vessel not being able to reach Owick Bay may be useful; it is, however, difficult of access, and when inside there is sufficient expanse to the northward for

a considerable fetch of the sea. At the entrance is a middle ground with  $2\frac{1}{2}$  and 3 fathoms, the south end of which bears W. b. N. from East Chauan point, the west end S. b. E. from the pagoda in Shoal Bay, and the east end, S. b. E.  $\frac{1}{2}$  E. from the same. On the right hand side of the entrance is Quadra Island, 3 cables' lengths from the S.W. point of which is a reef awash at low water ; when on it the east point of Chauan Bay bears S.E. b. E.  $\frac{1}{2}$  E., and the west end of Quadra, N.E. b. N. From the N.W. side of the bay shoal water extends for 1·1 mile : it may be detected by its colour. Anchorage in 6 fathoms will be found with the centre of Quadra bearing S.E., and further up the bay in 3 fathoms, with the south end of High Island in one with the east point of the bay. Between High and Quadra Islands, and between High Island and Chauan Head the channels are too narrow for square-rigged vessels.

108. Owick or Psyche Bay, lying 3 miles to the east of Chauan Head, is protected by a narrow isthmus, having two rocks off its south end ; vessels seeking shelter from northerly winds will find smooth water in  $3\frac{1}{2}$  fathoms, when the extremes of these rocks bear S.E. Immediately to the east of Owick Bay is a remarkable sand patch, which will help to point out its position.

*Owick Bay.*

109. Jokako Peak,\* the highest part of the land at the back of Owick Bay, is 880 feet high and conical shaped. Bell Island lies 3 miles to the east of Owick Point ; it is perforated at its south end, which will be seen on a S.E. or N.W. bearing. Between Bell Island and Jokako Point is a small islet having a reef off its northern end ; this islet contracts the channel between Bell Island and the Point to 5 cables' lengths. In the centre of the channel there are only  $2\frac{1}{2}$  fathoms. On Jokako Point is an isolated hill 640 feet above the sea : off it are two islets, Cliff Islet, bearing S.E. b. E. 1 mile, and Square Island, E.N.E. 1·7 mile ; a reef runs off 1 cable's length N.N.W. from Cliff Island, otherwise the channel between them and the Point is safe. Square Island is perforated. N.N.E.  $\frac{3}{4}$  E.  $5\frac{1}{2}$  miles from Jokako point is Cone Peak, 800 feet high, with a peaked rock off its eastern point ; the land between them is a sandy plain very little above high-water level, across which to the bottom of Chauan Bay the distance is  $1\frac{3}{4}$  miles.

*Coast line from Jokako Point towards Tong-sang Harbour.*

\* See Sheet IV of the East Coast of China.

*Brothers.*

110. The South Eastern Brother is the larger of the two; it has a reef extending north westerly from it; the islets are  $2\frac{1}{2}$  miles apart bearing S.E.  $\frac{1}{2}$  E., and N.W.  $\frac{1}{2}$  W. from each other. The small one has a remarkable square top.

*Tongsang Harbour.*

111. Tongsang Harbour (one of the best upon the Coast of China) will be readily recognised by a remarkable peak (Fall Peak), 930 feet above the sea, which makes something like a saddle, but with a deeper indentation; upon the island at the entrance is a pagoda which bears from the S.E. Brother, N.W. b. N.  $14\frac{1}{4}$  miles. There is a mud bank outside bearing from the pagoda S.E.  $\frac{1}{3}$  S. and from Fall Peak S.W.  $\frac{2}{3}$  S., on which the least water is  $3\frac{3}{4}$  fathoms; by keeping the Sisters (two islets in the northern portion of the bay) open of the east end of Middle Island (the island north of Pagoda Island), vessels will be to the eastward of the bank.

Pagoda Island and the eastern shore of the harbour are steep to until the low isthmus is opened connecting Thunder Head with Fall Peak; the eastern shore then becomes shoal, and the larger Sister must not be brought to the westward of N. b. W.  $\frac{1}{2}$  W.; there are also some rocks extending  $1\frac{1}{2}$  cables' lengths from the south point of Middle Islands, and a mud bank extends northerly half a cable's length from its east point.

*Anchorage.*

The Plover's first anchorage was in  $4\frac{1}{2}$  fathoms, with Fall Peak bearing E.N.E.  $\frac{1}{2}$  E. and the larger Sister N. b. W.  $\frac{2}{3}$  W. under a long sandy point. Afterwards, for the convenience of watering (which in the dry season was readily obtained), the vessel was moved to the southward under Thunder Head, Fall Peak bearing N.E. and the east end of Middle Island N.W.  $\frac{2}{3}$  W. Thunder Head by the Chinese is called Kau-li-tau-shan, which means High Fair Head Hill, instead of the old translation.

112. Junks anchoring for the tide bring up between Pagoda and Middle Islands; in passing to this anchorage care must be taken to avoid some rocks extending south easterly, 2 cables' lengths from the N.E. point of Pagoda Island. The best berth will be found in 12 fathoms, when the Sisters are seen through the opening in Middle Islands; but vessels must not close Middle Islands nearer than 2 cables' lengths, as there is a mud bank

*Water.*

extending from them southerly. This anchorage, although confined, will be found handy for a disabled vessel in case the ebb tide should prevent her reaching the other.

113. The channel between Pagoda Island and the western shore, although 3 cables' lengths wide, is not convenient to enter by, as rocks extend from both shores. The walled town of Tongyung is on the point opposite to the pagoda. Tongsang *Tongyung*. bay runs back N.N.W. 11 miles from Middle Islands : at the head of it is said to be a river. The boat had 3 fathoms water at the highest point reached, but the channel was very narrow. There is a boat channel leading into Challum Bay, the entrance to which bears west from Fall Peak.

It is necessary to warn vessels running in under Thunder Head that violent squalls will be experienced if the wind is fresh outside.

114. In proceeding to the eastward, the coast on the eastern side of Thunder Head must not be approached within 1 cable's length, as there are some rocks off it. The south face of the Head, however, is steep-to. *Coast east of Thunder Head.*

115. Rees Rock, covered at high-water spring tides, bears *Rees Rock*. S.E. b. E.  $\frac{2}{3}$  E. from Fall Peak, distant 1·7 mile ; when upon it the chimneys on the island, forming Rees Pass, bear N.E. b. N. There is a rock 1 cable's length east of Rees Rock, on which the sea breaks at low water. N. b. E. of Rees Rock, 1·3 mile, is Pass Islet. The ground between the two is foul with shoal water, and should not be approached. Junks use the channel between Pass Islet and the main, which is 2 cables' lengths wide. In Rees Pass, W. b. S. from the chimneys and 3 cables' *Rees Pass*. lengths from the shore of Chimney Island, is a shoal with 2 fathoms on it. The Plover rode out a very heavy gale of wind, ranging from N.E. to E. b. N. ; her anchorage was in 6 fathoms, 2 cables' lengths from the black rock at the southern end of the sandy bay under the chimneys. It is not supposed a vessel will gain anything by going through the pass, as immediately on clearing the north end of Chimney Island as much sea is experienced as there is to the eastward of the group.

116. Anchorage will be found under S.E. Islet in 6 fathoms, *South East Islet.* with the south end of it bearing east.

117. Wreck Islands lie 6 cables' lengths to the N.E. of *Wreck Islands*. S.E. Islet. At the eastern end of them are several rugged rocks,

on the outermost of which the *Simplicia*, merchant ship, went to pieces on the 8th of October, 1844, having struck upon a reef showing at low water, and lying 1 cable's length east of them.

In this neighbourhood the sea rises rapidly after the commencement of a breeze, and overtops, leading a seaman to suppose that there must be some change in the soundings.

*Dansborg Island.*

118. Two miles to the N.E. of Wreck Island is Dansborg Island, 6 cables' lengths long from N.E. to S.W., and  $2\frac{1}{2}$  wide. There are three peaks on it, of nearly equal heights. To the W.N.W. of it 1·4 mile is Skead Islet; and between them, at the distance of 4 cables' lengths from the latter, there is a small islet, with a reef extending from its west point. A reef also extends from the east point of Skead Islet.

*Ching Rock.*

119. Ching Rock, which covers at half tide, bears from Skead Island N. b. W.  $\frac{3}{4}$  W. 1·4 mile; when on it the N.E. head of Dansborg Island bears S.E.  $\frac{1}{2}$  E.; the chimneys on Chimney Island, S.W.  $\frac{1}{2}$  W.; the Awoota Rock, W.S.W.  $\frac{1}{2}$  W.; Black Head, N. b. E. The reef extends 2 cables' lengths to the eastward of its highest part. Eastern *Simplicia*, open east of Skead Islet, will keep a vessel to the eastward of it.

*Goo Reef.*

120. Goo Reef, showing at the last quarter ebb, bears S.W. b. W.  $\frac{1}{2}$  W. from Ching Rock. When on this reef the chimneys on Chimney Island bear S.W.  $\frac{1}{2}$  S.; Awoota Rock, W.  $\frac{3}{4}$  S.; summit of Wreck Island, S.E. b. S.; Skead Islet, E.  $\frac{3}{4}$  S. The Awoota Rock, mentioned above, lies close to the main and to the N.W. of Rees Pass.

*Hutaushan, or Black Head.*

121. Hutaushan, or Black Head, lying about 6 miles to the northward of Dansborg Island, comprises five separate hills, the southern of which is the most remarkable. Vessels might ride out a strong breeze under it in 4 fathoms 2 cables' lengths from the shore, particularly if the wind holds to the northward; should, however, a gale come on, or the wind draw to the eastward, the sooner this anchorage is quitted the better; refuge will then be found by running through Rees Pass and bringing up close under Chimney Island, or in Tongsang Harbour. On the northern of the five hills is a walled town. Hutaushan River, with deep water when inside, is not available for navigation without buoys, as the channels, besides being narrow and intricate, are liable to continual change.

A spit extends 3 miles south-westerly from Black Head, some parts of which are dry at low water. The eastern edge of it bears W.S.W. from Black Head.

122. The coast line from Black Head to Red Bay lies north-*Black Head to Red Bay.* easterly, the distance being  $10\frac{1}{2}$  miles. To the eastward of Tagau Point, 6 cables' lengths, are some rocks (Hut Islet), a portion of which are always uncovered. Spire Islet, 2 miles farther to the N.E., has a remarkable square column on it, and a flat rock to the westward. N. b. E., 1 mile from Spire Islet, is a Cleft Rock, surrounded by reefs, which render it dangerous to be approached within 3 cables' lengths. Opposite to Cleft Islet is Crab Point (one of the few places where the natives showed a disposition to attack the Plover during the survey of the whole coast).

Three miles to the S.W. of Spire Islet is Knob Rock, bearing *Knob Rock.* from Black Head East, and from the east head of Red Bay S. b. W.  $\frac{1}{4}$  W. : it is steep-to.

123. In working up to Red Bay from the southward, care *Shun Reef.* must be taken to avoid Shun Reef, which lies 6 cables' lengths east from a low hill on the shore, 3 miles to the southward of the anchorage. When upon the reef the eastern Black Rock bears N.E. b. E.  $\frac{2}{3}$  E. By tacking when the Black Rocks are in one with the point beyond them, vessels will be a third of a mile to the eastward of the danger.

124. Red Bay will be known by the two high black rocks *Red Bay.* off the point, as well as by the low red sand hills at the back of it. A reef extends north-westerly from the southern of the two rocks, leaving a passage for small boats between it and the main at low water. S.W. b. W., 7 cables' lengths from the southern Black Rock, is a reef, covered at high water. The water shoals gradually after passing the Black Rocks, and anchorage may be taken where convenient. This will be found a very fair roadstead in the northern monsoon.

There is a village on the right bank of a creek in the bottom of the bay.

125. From Red Bay to Chinhae, or Tinghae, as it has hitherto *Red Bay to Chinhae.* improperly been called, the distance is 19 miles, the coast trending N.E. b. N. Reefs lie off Cork Point (the N.E. point of Red Bay). House Hill, lying N.W. b. W.  $\frac{1}{2}$  W. from Lamtia Island, has a shoal-spit, with some rocks on it, extending southerly ; otherwise the coast line is steep-to.

*Lamtia Island.* From Red Bay, Lamtia Island bears N.E.  $\frac{1}{2}$  E. 9 miles. It is of basaltic formation, rising abruptly from the sea, on the southern side: a reef extends 7 cables' lengths to the N.W. from it. Notch Island, of a similar formation, with a rock awash off its S.E. point, lies 3 miles N. b. W. from Lamtia Island.

*Chapel Island.* 126. Chapel Island,\* in  $24^{\circ} 10' 3''$  N., and  $118^{\circ} 13' 5''$  E., and bearing E.N.E. from Red Bay, rises to the height of 200 feet, the whole of the island being nearly of the same elevation; it is perforated at its southern end. Between Chapel Island and

*Merope Shoals.* the main are two shoals (the Merope);† the extremes of the southern shoal bear from the Island S.W. b. W.  $\frac{1}{3}$  W. to W. b. S; the south end, with only 1 fathom on it, is distant  $7\frac{1}{2}$  miles from Chapel Island, and the northern end, in  $3\frac{1}{4}$  fathoms, is  $5\frac{1}{2}$  miles from the same; the direction and extent of the shoal is N.N.E.  $3\frac{1}{4}$  miles. Lamtia Island bears N.W. b. W. from its shoalest part.

The northern shoal bears from Chapel Island W.b. N.  $8\frac{1}{4}$  miles; its eastern edge bears from Lamtia Island N.E. This shoal is formed by a number of pinnacle rocks which show at low-water spring tides, and have deep water between them.

*Chinha or Tingtae Bay.* 127. Tingtae Bay lies 4 miles to the north of the North Merope shoal. Its N.E. horn is formed by a flat table head, the three chimneys on which, and the ruins of a walled town above it, cause it to be readily known. It will be found a good roadstead in the N.E. monsoon. The Pagoda of Nantai, 1720 feet above the sea, stands on the hills immediately at the back of this bay. The coast here continues in a north-easterly direction 3 miles further to Chinha Point, when it takes a sudden turn to the N.W., forming Amoy Harbour.

*Amoy Harbour.* 128. The principal entrance to Amoy bears N. b. W.  $\frac{1}{2}$  W., 14 miles from Chapel Island. On the port hand of the entrance

\* "When Chapel Island bore south, and about mid-channel between it and Amoy Harbour, Captain Ross, Surveyor to the H.E.I.C., passed over a sand-bank with six fathoms water on it, but no less could be found."—*Horsburgh East India Directory, Vol 2, page 422.*

"There are two remarkable mounds like chimneys on either end of Chapel Island."—*Remark Book, H.M.S. Reynard, 1850, Henry M'Ausland, Master.*

† "The Merope shoals do not break unless in heavy weather, or at very low tide."—*Remark Book, H.M.S. Reynard, 1850, Henry M'Ausland, Master.*

are the Islets of Wooseu and Wooan, lying rather more than a mile from the main, and 3 miles from Chinha Point ; between Chinha Point and Wooseu Island is a rock sometimes covered, *Wooseu*, bearing from Chinha N.  $\frac{1}{4}$  E., and from Nantai Pagoda E.S.E.  $\frac{1}{4}$  E. Wooseu is 300 feet high, and was at one time strongly fortified. There are three chimneys (the usual pirate signal on the coast of China,) on the north peak. The Opium vessels used to lie between it and Wooan. The anchorage was however found to be confined, and not so convenient of access as that under Taetan Island, where the dépôt vessels now remain.

A patch of low rocks awash at high water, called the Chawchat, *Chawchat*, lie 7 cables' lengths to the east of the chimneys on Wooseu ; there is a channel between them and Wooseu, but vessels had better *Channel* keep to the eastward, as the strong tides render a ship at *between* *Tsingseu and Chinseu* times unmanageable. Having passed the Chawchat a N.W. *Chinseu*. course will carry a vessel through the broadest channel between the Six Islands, leaving Chintseao, which are two rocks, and Tsingseu, a table-topped islet, on the port hand. At the distance of 6 cables' lengths from Chintseao and 2 cables' lengths from the S.W. point of Tsingseu is a rock showing at very low tides ; in beating in or out, therefore, do not stand between them so as to shut Taepan Point in with the east end of Tsingseu.\* Eight cables' lengths to the northward and eastward of Tsingseu is Chihseu, requiring a berth of a cable's length as rocks extend southerly and easterly from it. Connected with Chihseu (by a rocky bed which blocks the passage) are Taosao and Hwangkwa, two small islets of a similar character. Off Taosao, which is the north-western of the three, the foul ground extends 4 cables' lengths to the N.W., terminating in a reef, which bears from Chihseu North, and from the north end of Seaotan W.  $\frac{1}{4}$  S. By keeping the channel between Seaotan and Tactan open, vessels will be to the northward of it.

129. The channel between Hwangkwa and Seaotan is 3 cables' *Seaotan* *Channel*. lengths wide, and is frequently used ; foul ground, however, extends to the southward of both islands ; there is also a shoal

\* To the westward of Tsingseu Island there are many sunken rocks, on one of which the merchant ship "Blundell" struck in 1850. Vessels are recommended not to use the channel between Tsingseu Island and the main.—*Remark Book H.M.S. Reynard*, 1850, *Henry M'Ausland, Master*.

extending 2 cables' lengths from the west point Seaotan. A heavy or unhandy ship had better use the former channel.

The distance between Taetan Island, the highest of the six islands, and Seaotan, is 2 cables' lengths; ships will be liable to baffling winds in this channel: therefore (unless with local knowledge) it will be as well to avoid it. Taetan Island, at its western end, rises to a conical peak; a small circular fort stands on the summit. The receiving ships lie between it and Seaotan. Between Taetan and Amoy the channel is shoal (under 2 fathoms).

Captain Luard, H.M.S. *Serpent*, states that to the northward of Seaotan, 3 cables' lengths, where there is  $3\frac{1}{2}$  and  $4\frac{1}{2}$  fathoms marked in the chart, there is only now  $2\frac{1}{4}$  fathoms, and vessels drawing more than 12 feet are compelled to wait for high water to pass between Taetan and Seaotan islands.\*

*From the Six Islands to Amoy.*

130. Having passed the Six Islands, a N.W. course will take a vessel to the outer harbour: the bay on the southern side, west of Tsingseu, is shoal and should not be stood into. Kiseu Pagoda in one with Taepan Point bearing N.W. b. W.  $\frac{1}{2}$  W. is a good mark to tack on; and by keeping the north end of Seaotan to the southward of S.E. b. E., the shoals on the Amoy side will be avoided.

*Outer anchorage.*

131. The outer anchorage is to the southward of a large stone on the sand called (by mistake) Cornwallis Stone in the Admiralty chart (the Wellesley being Sir W. Parker's flagship when Amoy was taken).

\* The water on the bank west of Taetan Island has very much decreased since Captain Collinson's survey.—*Remark Book H.M.S. Reynard*, 1850, *Henry M'Ausland, Master*.

The rocks to the northward of Taetan Island appear to extend much further out than is marked in the chart, and two separate ones are visible at low water spring tides.—*Remark Book H.M.S. Serpent*, 1850, *W. G. Luard, Commander*.

† *David Wilder, Master H.M.S. Salamander*, 1853, referring to the Coker Rock, states that there is a remarkable tree and rock on the east side of Kulangseu Island; this tree in one with the west edge of the rock, will lead over the shoalest pinnacle in six feet. There is another head about eight fathoms to the eastward with 10 feet on it; the rock open west of the tree clears it to the westward, and open twice its breadth to the east clears it to the eastward.

Coker Rock, † with 4 feet on it at low water, lies W. N. W.  $\frac{1}{4}$  W. not quite 6 cables' lengths from this stone, and nearly 2 cables' lengths from the beach to the northward. Kiseu Pagoda open a finger's breadth to the southward of the rocks off Kulangseu will place a vessel on it. The channel between Kulangseu Island and Amoy should not be attempted without a pilot; it is 2 cables' lengths wide, and sunken rocks lie off both shores.

Kulangseu is surrounded by reefs, and foul ground extends 5 cables' lengths to the S.E. of it.

132. The inner harbour may however be reached by a *Amoy Inner harbour.* stranger without difficulty by passing to the southward of Kulangseu, and hauling up when the channel west of it opens, taking care to give the S.W. end of the Island (Druid Head) a berth of 1 cable's length, and bearing in mind that the shoal water extends 5 cables' lengths from the main opposite. The bay of Sungseu, on the north side of which the city of that name is built, runs back 7 miles to the west of Kulangseu; it is, however, shoal, and only navigable by small craft.

On Kulangseu it is high water at noon, full and change; the *Tides.* tide rises 16 feet.

133. The channel round the Island of Amoy is so narrow *Channel round Amoy.* and winding that directions would be useless; the chart is the best guide.

134. Little Quemoy Island lies 3 miles to the N.E. of Taetan; *Little Quemoy Island.* there is deep water between them, but the channel is confined by reefs.

The distance between the east point of Little Quemoy and *Quemoy Island.* the west end of Quemoy Island is rather less than 1 mile, affording a very secure harbour. In entering, vessels drawing less than 15 feet may border over on the Little Quemoy shore, so as to avoid the Quemoy bank, patches of which dry at low *Quemoy Bank.* water; the bank extends 3 miles to the southward of the west point of Quemoy, and is steep-to, the lead affording no warning; its western edge bears S.S.W.  $\frac{1}{2}$  W. from West Point; the southern end S. b. W.  $\frac{1}{2}$  W. from the Pagoda over the west point, and W.S.W.  $\frac{1}{2}$  W. from Leelou Head. A good mark to keep a vessel to the southward of the bank, when running into Amoy from the northward, is to open Kiseu Pagoda south

of Taetan Island, the pagoda bearing W.N.W.  $\frac{1}{2}$  W.\* The S.W. face of Quemoy is composed of low sand hills, the coast trending S.E. b. E. 3 miles from West Point.

*Leeolou Bay.*

135. It then turns to the eastward, and at the distance of 5 miles is Leeolou Bay. One mile to the east of the S.W. point of Quemoy detached rocks extend 8 cables' lengths from the shore, which must be cared for in foggy weather; the tides here are so uncertain that the course steered is seldom the course made. Leeolou Head (a low peninsula) will be known by a high Peak, lying immediately north of it, and rising 855 feet above the sea: this head may be rounded within a cable's length, and a berth picked up in the bay according to the vessel's draught.

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\* In running for the Taetan Channel, care must be taken not to mistake the north division of Taetan Island for the island itself; for Kiseu Pagoda, seen between the north and south division of Taetan Island, leads directly across the Quemoy Bank. This mistake is easily made.—*Remark Book, H.M.S. Reynard, 1850, Henry M'Ausland, Master.*

## CHAPTER II.

FROM HOOETOW BAY TO THE NORTHERN ENTRANCE OF  
HAETAN STRAITS AND THE PESCADORE ISLANDS.

136. Owing to the uncertain set of the currents in the Formosa Channel, several vessels have mistaken Hooetow Bay for the Harbour of Amoy ; the following remarks will point out the difference in the approach. Dodds Island in  $24^{\circ} 26' 6''$  N. and  $118^{\circ} 29' 4''$  E. may be known from Chapel Island by a reef on which the sea always breaks 3 cables' length to the N.N.E. of it ; the former also is uneven, gradually sloping to the eastward. Chapel Island rises suddenly, and there is a difficulty in saying which is the highest part of it ; Chapel Island is 8 miles from the nearest land, whereas Dodds Island is but 3. The entrance to Amoy, viz., from Chapel Island to the south point of Quemoy, is 11 miles ; but from Dodds Island to Hooetow point is only 5 miles. The rocks off the south end of Quemoy are peaked ; the reef off Hooetow point is flat. There are two Pagodas on Quemoy Point which bear N.W. b. W. and S.E. b. E. of each other ; on Hooetow Point is a small obelisk ; and the land turns suddenly to the northward.

137. Hooetow Bay will afford very good shelter in the N.E. monsoon, as the point may be brought to bear S.E. b. E. in  $3\frac{1}{2}$  fathoms, and vessels drawing less than 18 feet may bring it to bear S.S.E. ; the point is low (80 feet). On the hills north of it is a small fort, and there is a remarkable knob at the north head of the bay as vessels enter. To the eastward of the point 1.2 miles is a sunken rock, on which  $2\frac{3}{4}$  fathoms were found, but as in all probability there is less water it should be avoided ; the following are the bearings from the shoalest water the Plover obtained, Hooetow Obelisk N.W. b. W., Dodds Island S.W., eastern end of the land (Scrag Point) to the northward N.E. Reefs extend 3 cables' lengths from Hooetow point southerly, and from the first point inside they extend westerly  $2\frac{1}{2}$  cables' lengths.

*Oyster Island.* 138. Oyster Islet is a low flat rock N.W.  $\frac{1}{4}$  W., 2 miles from the Point. Vessels requiring shelter will find good anchorage between them, taking care to avoid the Oyster rock which shows at low water spring tides, and bears from the Islet S.  $\frac{1}{4}$  E.  $9\frac{1}{2}$  cables' lengths. When upon the rock the Obelisk on the point bears E.S.E.  $\frac{1}{2}$  E., the Fort E.N.E., and the summit of Flak Island is in one with the left slope of a conical hill in the bottom of the bay, bearing W.N.W.  $\frac{1}{4}$  W.

*Thalia Bank.* 139. The east end of the Thalia bank bears W.  $\frac{1}{2}$  S. 2·1 miles from Hooetow Point and N. b. E.  $\frac{1}{2}$  E. from Dodds Island; it extends beyond the white rocks in the centre of the bay; at the eastern end is  $1\frac{3}{4}$  fathoms, the western end dries, its N.E. face is steep-to, the lead giving no warning.

*Dodds Island.* 140. There is a rocky ledge bearing from E. b. N. to E.N.E. 1·2 miles from Dodds Island; on it are two patches of rock, one of which breaks and the other has 1 fathom over it at low water; the eastern end of the land seen to the northward (Scrag Point) bears N.E.  $\frac{1}{4}$  N. from its eastern edge. There are two rocks with 3 feet on them at low water, north of Dodds Island seven-tenths of a mile, and 1 mile respectively; and N.W. b. W.  $\frac{1}{2}$  W., 5 cables' lengths from the Island, is a reef showing at half tide.

*Upper part of Hooetow Bay.* 141. To the west of Oyster Island there is anchorage in 5 fathoms, but Oyster Island must not be brought to the southward of east, as there is a rocky ledge with only 1 fathom on it, 7 cables' lengths from the Island. Vessels requiring shelter in a southerly breeze may run up to the northward of the White Rocks and Thalia Bank into from 8 to 6 fathoms and find anchorage in  $5\frac{1}{2}$  fathoms, half a mile N.E. of it. To avoid the north edge of the Thalia Bank keep Flak Island to the west of W.N.W.  $\frac{1}{4}$  W. Oyster Island open to the north of the fort will clear the shoals which extend from the north side of the bay.

*Channel between Thalia Bank and Quemoy.* There is a channel between the Thalia Bank and Quemoy Island, but the ground is foul with several reefs; and it should not be attempted without the chart or some previous knowledge. A leading course to clear the south end of the Thalia Bank is to bring the chimney on the north end of Quemoy to bear W. N.W.  $\frac{1}{4}$  W. and steer this course until the White Rocks bear North, then N.W. until the White Rocks bear N.E. b. E.,

when vessels may haul further to the westward and steer for Eliza Island, which lies under the Chimneys.

142. The channel north of Quemoy has a depth of 8 feet *Channel north of Quemoy.* round it, and therefore might be used at high water; but no vessel should attempt it without a pilot.

143. On the N.W. side of Hooetow Bay are two remarkable *East and West Peaks.* hills, which will serve to establish a ship's position when in this vicinity. West Peak, the highest of the two, is 1714 and East Peak 1390 feet above the sea.

144. The 10 miles of coast line between Hooetow and *Chimmo Bay.* Chimmo Bays is low, the sand hills rising about 300 feet. Near the coast are two walled towns, the easternmost of which has a small pagoda near it. None of the bays afford shelter. H.M.S. Reynard tried that under Scrag Point, but was compelled to use her screw to get out of it. The tide sets *Tides between Hooetow and Chimmo Bays.* with considerable velocity along the coast, but both the period and the velocity vary considerably with the monsoon; the best guide are the fishing nets which will be found moored off this portion of the coast in great numbers. There is no doubt in the northerly monsoon that, besides the tide, vessels must calculate on a southerly set, and the same, but in a contrary direction, will most likely take place in the other season of the year; this set probably accounts for vessels having taken Hooetow Bay in mistake for Amoy Harbour.

Chimmo Bay will be known by the Kusan Pagoda, which stands on the north side of the bay  $1\frac{3}{4}$  miles from the sea and 760 feet above it. Off the south end of the bay or Chimmo Point are two islets, Sour and Pagoda, the channels between which, and between Pagoda Island and the south point of the bay are full of rocks. N. b. W.  $\frac{1}{4}$  W. from Sour Islet, 6 and 7 cables' lengths respectively, are two rocks showing at low water spring tides. When on them the east end of Pagoda Island is in one with a flat reef outside, Chimmo Point bearing S.  $\frac{1}{2}$  W. To pass to the northward of them, bring a large tree\* half a mile from the water's edge on the *Chimmo Rocks.* north side of the bay in one with a remarkable shoulder peak  $3\frac{1}{2}$  miles at the back of it, bearing N.W., and when Yungning

\* This tree could not be made out by the officers of H.M.S. Reynard.—  
Henry M'Ausland, Master, H.M.S. Reynard, Remark Book for 1850.

Islet (off the north point of the bay) is in one with Junk Head (the first point north of it), vessels will be to the westward of them; from these rocks to Yungning Islet the distance is 1·2 miles. Yungning Islet is steep-to, but there is a reef bearing from it W.  $\frac{3}{4}$  S., 3 cables' length covered at high water. In the bay the depths shoal gradually, but vessels drawing above 15 feet must not bring Yungning Islet to the southward of E.  $\frac{3}{4}$  S. The shores of the bay, although barren, are very populous; the inhabitants bear a bad character; it was here that the crews of the opium vessels were attacked in 1847. This anchorage is much exposed and can only be termed a roadstead.

*From Chimno  
to Chinchew  
Bay.*

145. The coast towards Chinchew Bay trends N.E., the distance to Chungchi Point being 8 miles; several sandy bays occur which afford shelter to junks, but from the number of rocks in and about them are not recommended for square-rigged vessels. One and a half miles from Chungchi Point is an islet with a building on it something like a bell.

*Chungchi  
Point.*

146. Chungchi Point, in  $24^{\circ} 45' N.$  and  $118^{\circ} 44' 7'' E.$ , is about 400 feet above the sea, and forms the southern entrance of Chinchew Bay; sunken rocks extend from it 2 cables' lengths to the south eastward. The course from  $1\frac{3}{4}$  miles east of Chungchi Point into Chinchew Bay is north until Choho Pagoda, bearing W.  $\frac{3}{4}$  S., is open to the northward of Seatoi Island, when it should be steered for; this mark clears the north edge of the Seatoi bank in 3 fathoms. The Omega, merchant ship, drawing 11 feet water, struck upon a bank  $1\frac{1}{2}$  mile easterly from Seatoi, but not less than  $2\frac{1}{4}$  fathoms were found upon it in March 1844. The south edge of the bank bears E.  $\frac{3}{4}$  S. from Seatoi.

*Seatoi Bank.*

147. Passage Island bears N.E.  $\frac{3}{4}$  N. from Chungchi Point, to the east of it are three rocks covered at high water; the outermost of which bears E.  $\frac{3}{4}$  S., half a mile from the island; a ledge also extends from its S.W. point, the outer rock of which is  $1\frac{1}{2}$  cables' lengths from high-water mark. N.E.  $\frac{1}{2}$  N. from Passage Island are two White Rocks, part of which are always uncovered; the channel between them is not safe. Northward of the White Rock 0·8 of a mile is Tahkut, an island at high water with a large town on it; between them is a sunken rock, which bears from the highest part of the northern

White Rock. N. by E.  $\frac{1}{2}$  E. 5 cables' lengths; when on it the summit of Tatoi bears W.S.W.  $\frac{3}{4}$  W.

148. Vessels intending to anchor north of the Boot Sand must steer so as to pass to the north of Tatoi Island, which lies 3 miles to the west of Passage Island, and will be known by its being the highest land in this neighbourhood; if drawing less than 15 feet they may run up until Choho Pagoda bears S. b. W.  $\frac{1}{2}$  W., when they will be about  $1\frac{1}{2}$  miles from the usual anchorage of the opium vessels, and by keeping the White Rocks mentioned above to the southward of east, the north edge of the Boot will be avoided. On the northern shore there is a sunken rock  $1\frac{1}{2}$  cables' lengths from the shore, and bearing N. b. W.  $\frac{1}{2}$  W. from the summit of Tatoi. Good anchorage in  $3\frac{1}{2}$  and 4 fathoms will be found with the summit of Tatoi bearing S.E. b. S. Although the Boot may be crossed by a vessel of light draught at high water, it should be sounded first, as the sands shift.

149. Vessels intending to go inside the Boot, steer up for Passage Island until Choho Pagoda bears W. b. S.; continuing southward of the Boot. to keep it on that bearing until the peak on Tatoi Island bears N. b. W.  $\frac{1}{2}$  W., and the eastern end of Seatoi Islands S.S. W.  $\frac{1}{2}$  W.; then edge away to the southward, and pass 1 cable's length to the eastward of Seatoi (a low barren islet 7 cables' length to the south of Tatoi). Haul round Seatoi at half a cable's length; when its western summit is in one with the highest part of Tatoi, vessels are in the narrowest part of the channel, which is here barely 1 cable's length across. The Lynx Rock, with only 6 feet over it at low water, lies E. b. S. southerly not quite 5 cables' lengths from the summit of Seatoi; when upon it Tatoi summit bears N. b. W.  $\frac{1}{4}$  W., Passage Island N.E. b. E.  $\frac{1}{2}$  E.

150. Two cables' lengths S. b. E. from the Lynx Rock is the Taheen Rock. Taheen Rock, showing at low water springs; when upon it, Choho Pagoda bears W.  $\frac{1}{4}$  N., Tatoi summit N. b. W.  $\frac{1}{4}$  W. The channel between Taheen Rocks and the Hewen Rocks (south of Seatoi) is rocky and uneven, and in several places there are only 6 feet at low water; it is, however, sometimes used by the opium vessels when the wind is too far to the eastward to permit them to fetch to windward of the Lynx Rock; their marks are the highest part of the Hewen Rock, S.S.W. of Seatoi Island, in one with Choho Pagoda bearing W.  $\frac{1}{3}$  N.

*Mid-channel Reef.* 151. Between Seatoi and the Hewen Rocks, rather more than a cable's length from the S.W. point of the former, and half a cable from the latter, is Midchannel Reef, three points of which show at low water spring tides; when on the centre of the reef the summit of Tatoi is in one with the west summit of Seatoi. Reefs also extend half a cable's length from Seatoi on its South, S.W., and Eastern sides; thus rendering the channel exceedingly awkward to a stranger.

*Seatoi to Pisai.* 152. Having passed Seatoi a W.N.W. course will take the vessel to the anchorage (above Pisai Island) in mid-channel; by keeping this islet to the westward of W.N.W.  $\frac{1}{2}$  W., the sunken rock off Choho Pagoda will be avoided, and by not bringing Seatoi to the southward of E.S.E.  $\frac{1}{4}$  E., the knee and toe of the Boot Sand will be avoided; the outline of this bank is, however, generally visible. The anchorage is north of Pisai 1  $\frac{1}{2}$  or 2 miles, where the channel is 3 cables' lengths wide.

*Choho Sandspit and Reef.* 153. A sandspit extends easterly from Choho Pagoda 1.2 miles, the sunken rock off which bears N.E.  $\frac{1}{2}$  E., six-tenths of a mile from the Pagoda, and E.S.E.  $\frac{1}{2}$  E. from the summit of Pisai.

*Ota Rock.* The Ota Rock, also covered at high water, lies east from Pisai 5 cables' lengths, and N.W.  $\frac{1}{2}$  N. from Choho Pagoda.

*Tsieuenchaufoo.* 154. The entrance of the Chinchew River, leading to the City of Tsieuenchaufoo, bears N.W. b. W.  $\frac{3}{4}$  W. from Pisai Island 3 miles. On the left bank near the entrance is a circular fort, 4 or 5 miles above which is the town, standing on the north bank of the river. The channels to it are shoal and intricate; the large junks have to wait in the neighbourhood of Pisai for tide before they can cross the flats, which are covered with artificial oyster beds.

*Pyramid Point.* 155. Pyramid Point\* (the N.-eastern horn of Chinchew Bay) is in 24° 52' 2" N., and 118° 58' E., Passage Island bearing from it W.S.W.  $\frac{1}{2}$  W. 8.7 miles. Vessels requiring shelter in the N.E. monsoon will find it in the first bay west of the Pyramid, taking care to avoid a sunken rock lying 1 cable's

\* Approaching Pyramid Point on a westerly bearing, it appears a bold black face of land, not in any way representing its name; but on a northerly bearing, or inside the point, it could not be mistaken.—*Remark Book H.M.S. Serpent, 1850, W. G. Luard, Commander.*

length south from the first point east of the walled town of Tongboo.

The Pyramid Rock is connected with the point at low water. *Pyramid Rock.* To the S.E. of Pyramid Rock is a rock never covered. Eastward of Pyramid Rock are several reefs, the outermost of which bears N.E. b. E.  $\frac{3}{4}$  E. 6 cables' lengths from the Pyramid, and from Goolai Point (the north head of Matheson Harbour) S. b. W. At the back of Matheson's Harbour there is a remarkable cone, and at the end of a promontory extending south-westerly from Goolai Point there is also a remarkable cliff-head; these two in one bearing N. b. W.  $\frac{1}{2}$  W. will place a vessel on the reef.

156. Matheson Harbour, called by the Chinese Goolai, lies *Matheson Harbour.* immediately to the north of Chinchew Bay, the isthmus near the town of Tongboo being only 1 mile across. This bay is 4 miles wide at the entrance, and will afford tolerable shelter to vessels of 12 feet draught if the wind be to the northward of east; but it is only a roadstead, and unsafe in southerly winds. There are no dangers in it except a rock which lies north 4 cables' lengths from the largest islet on the south shore.

157. Meechen Sound is 6 miles across; it will be known *Meechen Sound.* by the Ninepin Rock, which lies in the centre near the entrance. One mile south of the Ninepin is a cluster of rocks, *Ninepin.* one of which, Square Rock, does not cover at high water; the *Square Rock.* outer part of this reef, extending south-westerly  $1\frac{1}{2}$  cable's length from it, dries. H.M.S. Plover rode out a gale of wind to the west of the Ninepin, without much strain upon the cable; but with an uneasy sea. Anchorage was therefore preferred under Rogues Point, which forms the east head of the *Rogues Point.* bay; but since the survey H.M.S. Scout found a rock *Scout Rock.* here which renders this anchorage more difficult to come at. It lies directly between the Ninepin and the end of Rogues Point, bearing from the former E.S.E.  $\frac{1}{4}$  E., and from the mound at the end of the sandy isthmus connected with Rogues Point South. N. b. E.  $\frac{3}{4}$  E. 1 mile from the Ninepin is a rock which will be seen at low water. It bears N.W. b. W.  $\frac{1}{2}$  W. from the highest part of Rogues Point. There is a passage between it and the Ninepin, but rocks extend 1 cable's length in this direction from the latter. Six cables' length east of the Ninepin there is also a rock awash. There is a large spar moored about a mile and a half to the S.W. of

Square Rock. Rogues Point may be approached without fear except on its east side, where there is a reef rather less than 1 cable's length from the shore. Three and a half and 4 fathoms will be found at the distance of 3 cables' from the sandy spit west of it. One and a half miles south of Rogues Point is a patch having  $4\frac{3}{4}$  fathoms on it.

*Saddle Island.* 158. In the southerly monsoon vessels will find a good harbour to the N.W. of Saddle Island, which bears N.W. b. N.  $3\frac{1}{4}$  miles from the Ninepin. Pass to the southward of the south islet off it and haul to the northward round the western islet, giving it a berth of 1 cable's length at high water to avoid a ledge. The ground is very uneven hereabouts. There are only  $2\frac{1}{2}$  fathoms 1 mile W.N.W. of West Saddle Island.

*Cliff Islet.* 159. N. b. E. from Saddle Island is a low cliff islet from the west point of which a sand bank extends 1.7 mile to the north-westward; the south peak of Saddle Island kept to the eastward of S.E. b. S. will avoid it. When Mound Peak (which is on the main, 3 miles to the north of Saddle Island, with a walled town and a pagoda near it) bears east vessels are past the bank and may haul up for the town. W.N.W.  $\frac{1}{2}$  W. 2.4 miles from Mound Peak is a knoll with only 1 fathom over it at low water.

The junks use the channel between Mound Peak and Meicho Islet, and also pass between Mound Peak and Meichen Island. The former channel is deep, but requires personal knowledge; the latter is strewn with rocks, and in some places has not more than 9 feet. The sound runs back 10 miles to the northward and westward of Mound Peak, forming narrow isthmuses into Pinghai and Hingwha bays.

*Sorrel Rock.* 160. Sorrel Rock, bearing E. b. N. 3.8 miles from Rogues Point, is in  $25^{\circ} 2' 3''$  N. and  $119^{\circ} 10' 6''$  E. It is 50 feet high and has a detached rock south of it three quarters of a cable's length.

*Ping Rock.* 161. Ping Rock, 90 feet high and comical shaped, bears N.E. by N. 9.4 miles from the Sorrel Rock, and lies off the north point of Pinghae Bay; it is 4 cables' lengths from the shore, and there is a sunken rock S.W. b. W.  $2\frac{1}{2}$  cables' lengths from it.

*Pinghae Bay.* 162. Anchorage in Pinghae Bay will be found off the town in 3 fathoms, with Ping Rock bearing S.E. b. E. Five miles west of the anchorage is high a range of hills, one of the

peaks of which (Marlinspike) will form a good guide for this part of the coast. The bay runs back past the foot of Marlinspike Range, but is shoal, there being seldom more than 2 fathoms to the westward of the range.

To the northward of Ping Rock the reefs extend nearly 1 mile from the shore.

163. From Ping Rock the centre of Loutz Rocks bears *Loutz Rocks*. E.S.E. about 5 miles : between them are two sunken rocks (the Loutz Shoal), 1·8 miles from Loatz Rocks ; they bear from the Ping Rock S.E. b. E.  $\frac{1}{3}$  E., Marlinspike Peak being in one with it. When upon them the N.E. islet of Loutz is in one with the South Yit, bearing E.  $\frac{3}{4}$  N. There is a rock which shows at half tide N.N.W. 2 cables' lengths from the N.E. Loutz, and another south 9 cables' lengths from it ; the latter rock bears east from the highest part of Loutz Rock.

164. Ockseu or Wokeu are 2 islets in  $24^{\circ} 59' N.$  and *Ockseu Islands*.  $119^{\circ} 27' E.$  The H.C.S. Nemesis drawing 5 feet anchored under the eastern of the two, which is low, rugged, and sandy, with a large fishing village on it, and detached rocks off its east and west points. It is doubted, however, if there is shelter sufficient in a strong breeze for a vessel of greater draft. The western island is the largest of the two, rising to between 200 and 300 feet above the sea; it is round topped with smooth sides, and bears from Pyramid Point at the north side of Chinchew Bay E.N.E.  $\frac{3}{4}$  E. 28 miles, from Sorrel Rock E. b. S.  $15 \cdot 9$  miles, and from South Yit S. b. W.  $\frac{3}{4}$  W. 11 miles.\*

165. Lamyit Island,† the southern and largest of the *Lamyits*. archipelago called by the Chinese the 18 Yits, is 7 miles long in an E.S.E. and W.N.W. direction. The eastern peak (High Cone) is the highest, being 565 feet above the level of the sea, and is in  $25^{\circ} 12' 1'' N.$  and  $119^{\circ} 36' E.$  The south point is a bold table-land, off which and connected at low water is South Yit, within will be found a snug and accessible anchorage in the N.E. monsoon. On rounding, give South Yit a berth of  $1\frac{1}{2}$  cables' lengths and haul up into the

\* Commander J. C. D. Hay, H.M.S. Columbine, states in his Remarks for 1848, that a strong tide ripple, or reef, seems to break about  $1\frac{1}{2}$  miles W.N.W. of the Western Ockseu Island.

† See sheet V. of the East Coast of China.

bay, being prepared to come too directly the water shoals. N.W. from South Yit  $2\frac{1}{4}$  miles is a flat rock which is always above water, and S. b. E. from South Yit 4 cables' lengths is a reef which will only be seen at low water. This is the only danger in the bay, and will be readily avoided by tacking within  $1\frac{1}{2}$  miles of South Yit, should the vessel not fetch up into smooth water after rounding it.

*Channel to the west of the Lamyits.*

166. Vessels bound inside to the westward of the Lamyits must remember that there is a sand bank extending southerly from the west point of Lamyit  $2\frac{1}{4}$  miles. When on the southernmost edge of it, in  $2\frac{3}{4}$  fathoms, South Yit bore W.  $\frac{3}{4}$  S. By keeping Lam Point (the west point of the island) to the eastward of north, its western edge will be avoided. H.M.S. Plover examined this bank three different times, and on each occasion found a change. On one of which was discovered a passage between it and the point: the outline of the bank, however, may be detected by discoloured water.

There is also a rocky patch of  $1\frac{3}{4}$  fathoms on the western side of the channel, the east end of which bears from Clam Islet (the largest islet between Lamyit and the main) S. b. W. 2 miles. When on its south edge, Lam Point (which will be known by its three chimneys) bears E. b. N.

*Anchorage under Lam Point.*

H.M.S. Plover rode out a strong gale from the north east between Lam Point and Clam Island; but it is not a comfortable place for so doing, and vessels had better take shelter under Lam Point (where the junks anchor). The outer rock off the point always shows, and may be rounded close: it must not be brought to the westward of N.N.W., as the water shoals suddenly, and there is a sunken rock in the bay 6 cables' lengths to the south of it; the best anchorage will be found as close up under the chimneys as the vessel's draught of water will permit. For large vessels anchorage will be found  $1\frac{1}{2}$  miles to the north of the point, where they may choose their own depth.

*Hinghwa Sound.*

167. Before proceeding to the eastward, directions will be given for Hinghwa Bay, which will render the remarks on the passage to the northward more compact. If bound for the entrance of the Hinghwa river, vessels should steer northerly 7 miles from Lam Point, when they will be 1 mile to the northward of Knob Island, and may steer for Pitew Point, which bears N.W.  $7\frac{1}{2}$  miles from Knob. There is a patch of rocks off Knob

Island, the easternmost of which bears N. b. W. from it 8 cables' lengths, and the north-westernmost N.W.  $\frac{1}{2}$  W. 1.8 miles. A portion of them are always above water. Off Pitew Point is another patch, the S.E. end of which bears E.S.E. 2 miles from the S.E. corner of the fort. Good anchorage in 6 fathoms will be found with this corner bearing E.N.E. The point extending from it dries  $1\frac{1}{2}$  cable's length outside high-water mark. The entrance to the river leading to the town bears W. b. S. from the fort: it is shoal 5 miles from the fort. There are only 6 feet at low water across the bay. On the main, S.W. from Pitew Point, is a piratical establishment.

168. The best passage north of the Lamyits is the channel *Passage north of the Lamyits.* north of the Passage Islands (which are three in number), and bear N.N.E. 5 miles from Lam Point. Between Lam Point and the Passage Islands are Clifly Islands, in the vicinity of which are several reefs, rendering the channel between it and Lamyit, and between it and the Passage Islands, precarious.

A ledge extends westerly 2 cables' lengths from the S.W. point of West Passage Island; having passed which, vessels may haul to the eastward round the group. The channel is 4 cables' lengths wide, and is bounded on the north by a rock (with a reef  $1\frac{1}{2}$  cables' length to the west of it, showing at low water). North of the rock  $1\frac{1}{2}$  cable's length is a small islet, and north of the islet 4 cables' length is Rugged Island.

The N.E. Passage Island is a bold bluff, steep-to on its north side; from it the vessel may steer to pass either north or south of White Island, which bears east  $4\frac{1}{2}$  miles from Passage Islands; if to the south beware of three rocks, which cover at first quarter flood and bear S. b. W. 1.1 mile from it. E. b. N. 2.2 miles from White Islet is the southern edge of a reef extending from Kerr Island three quarters of a mile. Having passed this reef, haul to the north, and work up inside Chim Island, to the westward of which there are no dangers, except a rock at the entrance of Vangan Inlet, which may be avoided by keeping  $1\frac{1}{2}$  cables' lengths from the north shore. On the south point of Vangan Inlet there is a walled town and a pagoda.

169. The Hungwha Channel lies to the northward of the *Hungwha Channel.* Yits; it is bounded by them to the south, and by Sentry Reef and Sand Islands to the north. On no account ought vessels to stand in among the Yits, as the ground is very

uneven. Triangle Yit, with a reef to the eastward of it, lies to the S.E. of the High Cone peak on Lamyit Island.

Cap Yit, the southeasternmost of the group, lies E.N.E. 4 miles from High Cone Peak. Two miles S.E. from Cap Yit is a group of low rocks, some of which are always above water. Pass to the eastward of these, and Double Yit will be seen to the northward. The channel is 3 miles wide, and lies between Double Yit and Sentry Island. N.N.E. 4 miles from Double Island there is a remarkable white island, named Sand Island, with sandy beaches and detached hills. Pass to the westward of it, and the rocky islets on its N.W. face ; off which there is anchorage, should daylight or the tide fail ; but the best anchorage will be found off Station Island, which is on the Haetan shore, and to the north of Chim Island. Vessels have no business whatever between Sand, Sentry, Reef and Chim Islands, and should beware of the reefs to the eastward of Reef Island\*. The straits must be entered by either the Lamyit, Hangwha, or Haetan channels, these have yet to be described.

*Haetan Straits.* 170. Chim Island is the highest island hereabouts, and rises with sloping sides into two peaks, one of which is 640 feet above the sea, having on it three chimneys, the usual pirate signal along the coast of the Fokien province.

*Haetan entrance.* 171. Four miles to the S.E. of Chim and to the north of Reef Island are 4 rocks,† with reefs interspersed (called Chim Bank in the charts); these should have a berth of 1 mile to the eastward, and when the northernmost of these rocks bear W.S.W. 1 mile, a N.W. b. W. course will carry a vessel up to Station Island, which is on the S.W. side of Haetan Island. The distance between Chim Island and the rocks off Haetan Point is  $1\frac{1}{2}$  miles. Haetan Point is a rugged, sandy headland, with large boulders sticking up here and there. Off the Point are several rocks a little above high water ; there is also a sunken rock 7 cables' lengths to the east of them, and nearly 6 cables' lengths from the shore ; the best mark to avoid which is

\* The reef on the main bearing E. b. N. from White Island is very dangerous, and extends nearly two miles from the shore. It is quite hidden an hour after low water. There is good anchorage in the bay to the N.E. of the reef, in which bay are two islets not marked in the charts.

*Remark Book H.M.S. Columbine, Commander J. D. Hay, 1848.*

† The chart only shows two.

not to haul into the straits until the rocks off Haetan Point near E.N.E. Station Island is 3 miles inside this point. The *Station Island* coast of Haetan, between Station Island and Haetan Point, is shoal, with detached reefs, and should not be approached within 1 mile. There is a reef to the west of Station Island, which is covered at high tides. From Haetan Point the coast trends N.E. b. E.  $6\frac{1}{2}$  miles to Hae Point; between these *Haetan Point* points is a deep sandy bay, with several detached rocks, *to Hae Point*, the most remarkable of which (Trite Island) forms in three peaks.

172. S.  $\frac{3}{4}$  E. 2 miles from Trite Island is South Reef *South Reef*. (portions of which are visible unless the tides are very high and the water smooth); it bears E. b. N. from Chem Island, and S.W. b. W.  $\frac{3}{4}$  W. from Turnabout Island. Vessels coming from the northward, after rounding Hae Point, if bound into Haetan Straits, will avoid them by steering so as to pass half a mile south of Trite Island. Junks occasionally take shelter under Hae Point, and it is understood some vessels have done *Hae Point*, so in the N.E. monsoon; it will, however, be found very exposed should the wind haul to the southward of east.

173. Turnabout Island, lying 4 miles from Hae Point, is *Turnabout Island*. in  $26^{\circ} 26' N.$  and  $119^{\circ} 58' 7'' E.$ ; there are two small islets off it.\* The passage from Lamyits to the White Dogs may be considered as the most difficult portion of the coast that a vessel has to contend with in the N.E. monsoon, and it is believed there are few men who know the Coast of China but will allow that Turnabout Island is well named. The attempt of the flood to force its way through the Haetan Straits forces the water back, and occasions a strong current off Kwing Bay. It is a great misfortune that this bay does not *N.E. end of Haetan*. afford shelter, as it would prove an uncommonly good half-way house; it is, however, one of the worst places on the Coast of China H.M.S. Plover dropt anchor in, being full of rocks, with a heavy swell. Vessels have, therefore, no alternative but to stand off and trust to a slant on the Formosa side (which has been successfully practised by H.M.S. Serpent, under Commander Luard) or to take the Haetan Straits.

\* Commander J. S. Ellman, H.M.S. Salamander, states that there is a sunken rock on which the sea breaks occasionally two cables' lengths to the northward of Turnabout Island.—*Remark Book H.M.S. Salamander*, 1851.

The open sea is however, preferable, notwithstanding that some vessels have got successfully through the straits; yet it requires local knowledge and a handy vessel to prevent great detention. A description will first be given of the N.E. end of Haetan Island, after which directions for the Haetan Straits.

174. From Hae Point, Tan Point bears N. b. E 7 miles. The space between them is a deep sandy bight, with numerous rocks, both above and below water. Tan Point (which is a low cliff, with a mound at the back of it,) forms the south end of Kwing Bay; off it at the distance of  $1\frac{1}{2}$  miles are the Tan Rocks, some of which are always visible. Kwing Island lies 1 mile to the north of Tan Point; reefs extend South-easterly from it 1 mile. The channel between Kwing Island and Tan Point is much obstructed by reefs at its western end, and the swell rolls home to the Haetan shore. Between Kwing and Haetan is another islet; but the tide rushes through these channels with such velocity that on no account ought they to be taken.

Over Kwing Bay, on Haetan Island, is a remarkable peak, (Kiangshan) 1,420 feet above the sea; it is in  $25^{\circ} 35' 6''$  N.,  $119^{\circ} 50' 7''$  E.

175. Vessels intending to pass through the Haetan Straits\* *Haetan Straits.* must steer from Station Island (article 171) on the Haetan shore N.W. b. W. until Junk Sail Rock bears north (to avoid a sandspit which extends from the point N.W. of it), and *Junk Sail Rock.* then haul up for Junk Sail Rock, from whence a reef extends half a cable's length, both to the southward and to the westward. N.W. b. W. 1·1 mile from Junk Sail is Pass Island, from whence a sand-bank extends southerly, the end of which bears from the west point of Junk Sail Rock, S.W. b. W.  $\frac{1}{2}$  W.; this channel is rather less than half a mile wide. N.E. from the summit of Pass Island is a reef showing at half tide; the channel lies between this reef and a small islet 4 cables' lengths to the north, having a mud spit with rocks on it, bearing S.S.E. 3 cables, nor can the islet be approached within a cable's length of high-water mark on its western side.

176. Having got through the channel, steer N. b. W.  $\frac{1}{2}$  W., *Flag Island.* so as to pass to the eastward of Flag Island, which is 2 miles

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\* See Plan.

from Pass Island, and has a spit extending southerly 3 cables' lengths from it, and a ledge of rocks off its N.E. point on which H.M.S. Plover lost her false keel; then bring the east end of Flag Island in one with the west end of Pass Island, which it will be bearing S.  $\frac{1}{2}$  E. This course will carry a vessel in mid channel 5 miles above Flag Island; care, however, must be taken not to open them, as there is a reef 1·2 miles above Flag Island, which shows at low water; a chimney hill on Haetan bears E. b. N. from this reef. By keeping the chimneys on Chim Island (article 170) just open to the westward of the west point of Mud Islet (the islet N.E. of Pass), it will be avoided. When Pillar Rock (which is on *Pillar Rock* the Haetan shore, and bears N. b. E.  $6\frac{1}{2}$  miles from Flag Island), bears N.E. b. E., steer N.W. b. W. until Slut Island bears N. b. W., when it may be steered for, passing on the west side of Tower Rock; the latter bears N.  $\frac{2}{3}$  W. from *Tower Rock*. Flag Island 8 miles; there is a reef  $1\frac{1}{2}$  cables' length to the west of it. The summit of Slut Island bears N. b. W.  $\frac{1}{3}$  W. 4 miles from Tower Rock; between the two are several rocks and reefs; the west end of the reef nearest to Tower Rock part of which always shows, bears N.  $\frac{3}{4}$  W. from it, N. b. W. 2·8 miles from Tower Rock is a reef only showing at low water; when on it Cows Horn (a remarkable peak on the main outside the straits) bears N. b. W. and is in one with the east end of Slut Island; the Pillar Rock bears S.E. b. S., and the Tower Rock is in one with the S.W. point of Haetan. On the opposite (the western side of the channel) is a black-peaked rock above described, which bears from the reef W N.W.  $\frac{3}{4}$  W., 7 cables' length; rocks visible at low water extend from Black Peak south-easterly *Passage*  $2\frac{1}{2}$  cables' lengths, and there is a reef south of it 5 cables' *between Slut and Shingan* lengths. Both these reefs will be avoided by keeping the *Islands*. summit of Slut Island to the northward of N.  $\frac{1}{2}$  E.; there are several reefs between Chung Island and this Black Peak. The best channel out is that to the east of Slut Island, between Slut and Shingan Islands. Reefs extend from both shores narrowing the channel to 4 cables' lengths. When through the narrows, the summit of Slut must be kept to the southward of S.W.  $\frac{1}{3}$  S. as there is a rocky patch with only 9 feet on it 7 cables' lengths from the island. Three miles N.N.E.

from Slut Island is a sunken rock on which the sea breaks at low water; when upon it Cows Horn bears N.W.  $\frac{2}{3}$  N. Shingan (the island on the starboard hand opposite to Slut Island,) trends away to the N.E., breaking into detached fragments and giving a little more room for a board, but the main difficulty is the tide, which, after a vessel is through the channel, affords little or no help, so that unless a slant of wind can be commanded she is liable to be driven among the small islets north of Haetan, and if a dull sailer, unable to clear the dangers in one tide, and will be compelled to bear up before dark. The junks invariably use the straits, but H.M.S. Plover found one that had been detained 27 days waiting for an opportunity to get out at the northern end. There are three other channels between Slut and Haetan Islands, none of which, owing to the height of the islands and consequent liability to be becalmed, are so good as the one described. The flood tide enters through all these, but with great irregularity; it should, however, be observed, that while H.M.S. Plover was employed on this portion of the survey, a very severe typhoon occurred to the northward, which may in some measure have caused the difficulty experienced by her in getting out at this end.\*

*Tides in the Channels.*

*Tessara Islands.*

177. N.N.E. 6 miles from Slut Island, are four islets (the Tessara), with 6 fathoms between them and Cows Horn. The long swell which set into the bay prevented the Plover anchoring, and giving them as well as the islets to the eastward that close investigation that could have been wished. The only conclusion arrived at was that there was nothing here sufficiently extensive to shelter a vessel in the N.E. monsoon. A reef extends 3 cables' lengths S.S.E. from the easternmost islet of the four.

*Red Rock.*

Red Rock, a small islet with reefs about it, lays S.E. b. S. 3 miles from Tessara. Vessels should not close the Haetan shore to the eastward of this rock, as the intervening space between it and the Warning Rocks (which are about 80 feet high and lie 7 miles to the east of Red Rock) is strewn with reefs.

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\* See Captain Collinson's opinion of this channel, Article 173. Captain Bate, of H.M.S. Royalist, states that vessels ought to be very cautious in these straits.

Norton Rock (about 50 feet high, with a rock awash 5 *Norton Rock*, cables' length to the west of it), lays east  $6\frac{1}{2}$  miles from Tessara. North of Tessara  $7\frac{1}{2}$  miles is the southernmost of a group of rocks and shoals, which extend hence all the way to Sand Peak. Junks anchor under the largest (White Island), but there is almost always a heavy ground swell setting into this bay. The sandy beach extends from Cows Horn to Sand Peak, a distance of 16 miles, and may be stood into until the group just described is reached, this group it is advisable to keep outside of, taking care of a rock which lies 9 cables' length east of the southernmost White Island. Under Sand Peak the banks at the entrance of the River Min commence; 3 fathoms will be found 2 miles from the shore, and boats may find their way into the Min by the channel between Sand Peak and Woufou Island, but the navigation even for them is difficult, and entirely impracticable to any but of such light draught as will go over sands that dry at low water. This, however, when the tide will admit, will be found the best channel for a vessel lying at the White Dogs to communicate with Foochowfoo. There is a large fishing establishment under Sand Peak.

178. The Ponghou or Pescadore Archipelago\* consist of twenty- *Pescado Islands.* one inhabited islands, besides several rocks. They extend from  $23^{\circ} 13'$  to  $23^{\circ} 48'$  N., and from  $119^{\circ} 16'$  to  $119^{\circ} 37'$  E. Their general appearance is flat, the summits of many of the islands being nearly level, no part of the group being 300 feet above the sea; abundant refreshments may be procured here. The two largest islands are situated near the centre of the Archipelago, forming an extensive and excellent harbour between them. The western island of the two (Fishers island†) is 5 miles from north to south, and  $3\frac{1}{4}$  miles from east to west. On its S.W. extreme is a lighthouse 225 feet above high water, which is said to be lighted occasionally.

To enter the harbour pass half a mile to the southward of the lighthouse point, and then steer E.  $\frac{1}{2}$  N. for Makung, which is situated on the north side of an inlet on Ponghou, and will be readily recognised by a citadel and line of embrasures. The large junks, waiting for a favourable wind to take them

\* See Sheet of the Pescadore Islands.

† In a collection of voyages in Dutch, published in 1726, Fishers Island is called D'Vissers Island.

to Formosa, lay to the S.W. of the town in 7 and 8 fathoms water, with a black rock, which is midway between Fishers island and Makung, bearing about N.E. b N. H.M.S. Plover ran into the inner harbour to the eastward of Makung, passing between it and Chimney point, and anchored with the latter bearing N.W.  $\frac{2}{3}$  W. distant 6 cables' lengths, which is also the width of the channel here. The junks belonging to the place lie close to the town, in a creek which runs back to the northward of the citadel. There is water sufficient for a square rigged vessel, but the harbour there is much confined by coral reefs.

*Dangers to be avoided.*

The only dangers, on entering by this passage, are a shoal with only 9 feet upon it at low water, which lays N.W.  $\frac{1}{2}$  W. from the centre of Tablet Island. Its S.W. extreme, having 4 fathoms water, bears N.W.  $\frac{1}{2}$  W. 1·1 mile from the south end of Tablet Island, and its N.E. limit bears N.W. b. W. from the north point of the same island. The western limit bears S.W. b. W.  $\frac{2}{3}$  W. from Dome Island.

*Dome Island.*

179. Dome Island lies N.b. E.  $\frac{1}{2}$  E.  $1\frac{3}{4}$  mile from Tablet Island, and has a reef which is just awash at high water 5 cables' lengths to the westward of it. It is  $2\frac{1}{2}$  cables' lengths from the S.W. end of Ponghou.

*Flat Island.*

180. To the northward of Dome Island is Flat Island, which is 2 cables' lengths to the westward of the Chimney point, and is surrounded by reefs which extend a cable's length from high water mark. Shoal water extends northerly three-quarters of a cable's length from Chimney point, on which is the old Dutch fort.

181. Makung harbour runs back 3 miles to the eastward of the Chimney point: there are four coral patches in it, which are awash at low water spring tides and may always be detected from the mast-head in time to avoid them. The westernmost bears from the Chimney point S.E. b. E.  $\frac{1}{4}$  E. and from the Dome Hill (a remarkable elevation in the southern part of the harbour) N. b. W.  $\frac{2}{3}$  W. On the same bearing from the Chimney fort, and  $2\frac{1}{2}$  cables' lengths further to the eastward, is another patch, from which the Dome Hill bears south. And with the Dome Hill S.  $\frac{1}{2}$  W. and the Dutch fort N.W.  $\frac{1}{3}$  W. is another reef:—also with the fort bearing N.W.  $\frac{1}{3}$  W. and the Dome Hill S.S.W.  $\frac{2}{3}$  W. is a fourth shoal. They are all small in extent and steep-to.

The Chimney or Dutch fort, above alluded to, is on the south-west point of Ponghou, which in some places is barely a cable's length broad, and so low that a vessel in this part of the harbour might be fired into from one outside.

Ponghou extends 9·6 miles from north to south, and 7 miles from E. to W.; it is however separated into three portions by narrow channels, which have only 2 feet at low water, and are further blocked by stone weirs. The whole of the western face of the island is fronted by coral reefs. Water was obtained from wells; the three which the Plover used yielded three tons daily. Bullocks and fish were reasonable and plentiful.

Vessels in a northeast gale seeking shelter will find smooth water between the lighthouse and the S.E. point of Fishers Island, where there are two sandy bays, in the northern of which is a fort or line of embrasures, and in the southern is a run of water except during the dry season.

182. The S.E. point of Fishers Island is a bold cliff 170 feet above the sea, N.E.  $\frac{3}{4}$  E.  $1\frac{1}{2}$  mile from which is the Black Rock, part of which is always uncovered. Vessels passing to the north eastward of it must keep within 4 cables' lengths, as the coral patches extend in this direction from Ponghou.

The coast line of Fishers Island trends north from the S.E. point, forming several small bays, which are steep to within a cable's length of the beach, until vessels are  $2\frac{1}{2}$  miles north of Sion Head point, when the reefs extend nearly 3 cables' lengths. To avoid which the slope of the Sion Head point must not be brought to the southward of S. b. W.  $\frac{1}{2}$  W. after Makung citadel opens to the northward of the Black Rock.

The Plover anchored beyond this point in 3 fathoms, with the Black Rock bearing S. b. E.  $\frac{3}{4}$  E. and the highest part of Centre Island E.  $\frac{1}{2}$  N. In the bay abreast of her was a good stream of fresh water.

The harbour beyond this point is much choked with coral patches. There is a passage out to the northward between Fishers Island and Pehoe Island for vessels of 16 feet draught; to render it available, however, local knowledge is necessary.

To avoid the coral reefs which extend from the shore of Ponghou, do not stand further over on that side than to bring the Black Rocks S.S.W.

*Shelter in the southerly monsoon.*

Shelter from southerly winds will be found in the bay formed by the northern ends of Fishers and Pehoe Islands. The N.E. point of the former is a table bluff, with reefs which cover at high water extending 2 cables' lengths north-easterly from it.

*Tortoise Rock.*

183. Tortoise Rock, 2·1 miles from the N.W. point of Fishers Island, is 9 feet above high water and is steep-to. There is a shoal patch of 2 fathoms bearing S.  $\frac{3}{4}$  E. seven-tenths of a mile from it; when on it the N.E. point of Fishers Island bears S.E.  $\frac{3}{4}$  E. On the western face of Fishers Island is a reef which breaks at low water, 7 cables' lengths from the shore, which bears N. b. E.  $\frac{1}{4}$  E. from the lighthouse.

*Northern part of the Archipelago.*

184. The Archipelago, to the northward of Fishers and Pehoe Islands, does not afford any inducement for a vessel to enter it. The external dangers therefore will only be noticed.

*Sand Island.*

N E. b. E.  $\frac{1}{4}$  E. from the Tortoise Rock is Sand Island, which will be known by a hummock which rises on the low land in the centre of the island; off its S.W. end is a rock and the reefs extend north westerly 3 cables' lengths from it. To the east of it half a mile is a flat black island, and to the north of it a cluster of stones, some of which are always above water.

*Bird Island.*

185. Bird Island bears E.N.E. from Sand Island. A long sandy point forms its southern extreme. From the north point the shoal water extends 3 miles.

*North Island.*

186. North Island, which is nearly connected by reefs with Bird Island, is 1 $\frac{1}{2}$  miles from the north point of it; there is a house for the shelter of fishermen on it.

*North Rocks.*

187. The northern extremity of the reef uncovers at low water, and bears from N.N.W.  $\frac{1}{2}$  W. to N.  $\frac{3}{4}$  W. from North Island distant 1·4 mile; from its west extreme, which is steep-to (for the lead gives no warning), Sand Island bears S. b. W., also from the west point of Bird Island rock extend towards the north reef. Sand Island must not be brought to bear to the westward of S. by W. until the west point of Bird Island bears to the eastward of E. by S. There is a shoal patch N. b. W.  $\frac{3}{4}$  W. from Sand Island and west from North Island, on which

however not less than 5 fathoms was found. Shelter from southerly winds will be found to the northward of these reefs and Bird Island.

188. From the northeast end of Bird Island, Sable Island bears *Sable Island*. S.E. by S. 5 miles. It is a small islet with a sand patch on its south cliff and is surrounded with rocks, being nearly connected with the two islands to the south of it. The southernmost of which has a large village on it.

189. S. b. E.  $\frac{1}{2}$  E. 3 miles from Sable Island is Organ *Organ Island*. Island; there is a reef bearing N.E.  $\frac{3}{4}$  E. one mile from it; when upon it Sable Island bears N.W. b. N.

190. Ragged Island bears S.E. b. E. 1.2 miles from Organ *Ragged Island*. Island. The whole of the east coast of Pehoe and north coast of Ponghou Islands opposite to these five islands is shoal.

191. The eastern extremity of Ponghou is a low shelving point  $1\frac{1}{2}$  miles from which is Round Island bearing from Ragged Island S. b. E.  $\frac{2}{3}$  E. 3.6 miles, and S.  $\frac{1}{2}$  E. 1.3 mile from Ragged is Three Island. N.W. b. W.  $\frac{1}{4}$  W. from Three, and S.W. from Round Islands, is a reef which covers at half tide. And between Round and Organ Islands are several over falls. The S.E. point of Ponghou, How Point, bears S.W.  $\frac{2}{3}$  W. from Three Island. Between are two bays with fishing villages, either of which would afford tolerable shelter in the northerly monsoon.

192. Table Island ; is aptly named, the summit being a dead flat 200 feet above the sea ; not far from the S.W. end is a sudden fall nearly to the level of the sea, giving it at a short distance the appearance of two islands ; it is not quite 2 miles in an E. b. N. and W. b. S. direction, and is seldom 3 cables' lengths in width. Towards the N.E. end was a good run of water in the month of June. The 2 fathoms line extends 2 cables' lengths from its eastern extreme.

193. Tablet Island lies a mile to the N.W. of it ; between them *Tablet Island*. there are from 12 to 19 fathoms water ; the distance from Tablet Island to the south point of Ponghou is 2.6 miles with from 2 to 32 fathoms water.

Directions for avoiding the shoal off Tablet Island have already been given in article 178.

194. From Table Island Yihpan Island bears W.S.W. 10.5 *West Island*, or miles, and from the lighthouse on the south end of Fisher's Island *Yihpan*.

S.W.  $\frac{1}{3}$  S. 12 miles. It is 2 miles in circumference and uneven in appearance.

*High Island.*

195. South of Yihpan Island  $4\frac{1}{2}$  miles is High Island, which is dome shaped, 300 feet high and three-quarters of a mile in circumference. To the eastward of it one mile is a low flat island; between the two are several rocks, one of which rises to the height of 60 feet with a remarkable gap in it, and S.E.  $\frac{1}{2}$  E. 1.7 mile from the summit of High Island is a rock nearly level with the water's edge.

196. Junk Island is 2 miles from E. to W. and half a mile from N. to S.; the depths of water in its vicinity are 15 and 16 fathoms. On its S.W. side is a reef of rocks extending 6 cables' lengths from the shore, within which is a small harbour for boats. On its eastern face are bold cliffs. The western extreme is a long shelving point. The highest part of the island is 260 feet above the sea. From it High Island bears N.W.  $\frac{1}{3}$  N. 9 miles, Reef Island N.E. b. E.  $\frac{1}{2}$  E. 6 miles, East Island E. b. N. 12 miles.

*Reef Islands.*

197. Reef Islands are three in number, one of which is a remarkable pyramid. The other two are rather more than a mile each in circumference, and are connected at low water by a stony ledge. To the southward of them the reefs extend half a mile. South from the east end of the East Island of the two is a pyramidal rock 80 feet above the sea. There is also a low flat rock nearly level with the water's edge. S.W. b. S. one mile from the same place and S.E. from the east end, is a small peaked rock with a reef to the northward of it.

*East Island.*

198. East Island lies east of Reef Island 8.2 miles. Between the two and distant from the latter 5.2 miles is a smaller island  $1\frac{1}{2}$  miles in circumference, with a reef extending easterly, not quite a mile from its north point. East Island is 2.4 miles in circumference, and has a small islet 5 cables' lengths from its western shore.

*Nine-foot reef.*

199. The Nine-foot reef bears N. b. E.  $\frac{3}{4}$  E. from the E. end of East Island; when on it the Dome Hill on Ponghou Island bears W.N.W.  $\frac{1}{2}$  W. 10.7 miles, Three Island N.N.W.  $\frac{1}{2}$  W. 4.1 miles. The lead gives no warning, but if there is any tide the ripple will be sufficient to indicate its position.

*Rover Group.*

200. The Rover Group is composed of two larger islands and several rocks. The western island of the two is 2 miles from

N. to S. and one from E. to W. The summit is near the eastern shore, and rises like a dome with a large pile upon it. S.W. from it 2·6 miles is the end of a reef, which extends westerly from the south point of the island. Its extreme shows at all times of tide. There is also a rock under the highest part of the island, bearing W.S.W.  $\frac{1}{4}$  W. from it, 2 cables' lengths from the shore. The N.W. point of the island is not steep to, and off the N.E. point is a rock which will always show. There is a channel between it and the point.

The distance between the E. and W. islands is barely a cable's length wide; the former is a mile from N. to S. and 1·4 mile from E. to W. On its N.W. face are two islets; in the bay to the southward of the southernmost a small vessel might take shelter in a northerly wind, taking the precaution not to stand too far in, as there are only 6 feet, 2 cables' lengths from the beach. On the west end of the island, which is a cliff, are three embrasures. Having passed between the two islands, in doing which the western island should be kept on board, a small rock in the centre of the channel to the southward will be seen. Pass to the eastward of it; but the channel is narrow, and the only excuse for a stranger using it would be his vessel being caught at anchor to the northward of the two islands in a breeze from the northward, and unable to fetch clear either to the eastward or westward.

The east point of the east island is remarkable from an isolated cliff 100 feet high, which forms the most striking feature in the group; 7 cables' lengths to the westward of which is a ledge of rocks, part of which are always above water. The islands are sufficiently large to afford shelter in either monsoon. The general depth of water on the southern shore are 7 and 8 fathoms, and on the northern 13 and 14. From the highest part of the Rover Group, the lighthouse bears N. b. W. 10 $\frac{1}{2}$  miles. The Reef Islands bear S.  $\frac{3}{4}$  E. 3·3 miles from the same place. The general depth of water on the western side of the Archipelago is 30 and 35 fathoms; there are however some places in which there is as much as 60. To the eastward of the Group the depth is 40 fathoms, and the current is strong. The tides are much affected by the prevailing winds; so much so that during the month of August the Plover sometimes experienced a tide of 4 knots per hour on the flood,

running to the northward, whilst with the ebb the current slackened for two and three hours, but seldom ran with any velocity from the northward. On the whole vessels navigating in this neighbourhood may safely allow that the effect of the current and tide together will set them, according to the prevailing monsoon, 17 miles in one tide.

*Astronomical Positions, Pescadore Islands.*

| NAME.                | SPOT.                                      | LATITUDE.   | LONGITUDE.   |
|----------------------|--|-------------|--------------|
| Observatory - {      | Second point on north side inner harbour } | 23° 32.9 N. | 119° 30.2 E. |
| Dome Hill - -        | Summit - - -                               | 23 31.7     | 119 30.5     |
| Lighthouse - -       |  | 23 33.6     | 119 24.7     |
| South Island - -     | Centre - - -                               | 23 13.5     | 119 22.4     |
| High Island - -      | Highest Part - - -                         | 23 20.      | 119 16.2     |
| East Island - -      | South Point - - -                          | 23 16.3     | 119 36.6     |
| West Island - -      | Highest Part - - -                         | 23 24.7     | 119 16.5     |
| Nine foot reef - -   |  | 23 28.6     | 199 41.5     |
| Triple Island - -    | Highest Part - - -                         | 23 32.1     | 119 39.5     |
| N.E. Sand Island - - | Do. - - -                                  | 23 40.2     | 119 36.2     |
| Tortoise Rock - -    |  | 23 40.9     | 119 27.      |
| North Reef - -       |  | 23 47.7     | 119 32.1     |
| North Island - -     | Highest Part - - -                         | 23 46.3     | 119 32.3     |

High water on full and change days, 10h. 30m.; rise and fall of springs, 9ft. 6in.; neaps, 4ft. 4in.

## CHAPTER III.

FROM THE WHITE DOG ISLANDS TO THE KWESHAN  
ISLANDS.

201. The White Dog Islands, called by the Chinese *White Dog Islands*, Pihkuen, bear N.N.E. 23 miles from the Kiangshan Hill on Haetan Island and from Norton Rock N.E.  $\frac{1}{2}$  N. 15 miles. They consist of two large and one smaller islet. One and a half miles N.E. from the east island is a rock, on which the sea generally breaks. In the N.E. monsoon, anchorage for ships of any draught will be found under the western island. This *Anchorage in the N.E. Monsoon.* island, which is the largest of the group, has a reef of rocks terminated by a square islet called the Breakwater. Small vessels will find good shelter close under it in 18 feet, and here whole fleets of Chinese junks anchor during foul weather. As the water decreases gradually towards the large island, ships of greater draught may approach as convenient, bearing *Anchorage for large ships.* in mind that there is 18 feet rise and fall. H.M.S. Cornwallis (Vice-Admiral Sir W. Parker) anchored here for 5 days, with strong north-easterly winds and rode easy. The bearings from her anchorage were as follows: Breakwater, N.  $\frac{1}{2}$  W.; village, N.N.E.; eastern island, E.  $\frac{1}{2}$  S. One cable's length off the western point of Village Bay on the south side of the western island there is a half tide rock.

The channel between the islands is safe. Rocks and reefs extend both northerly and westerly from the eastern island, but the outer ones always show. The Breakwater is in  $25^{\circ} 58' 1''$  N. and  $119^{\circ} 57'$  E.\* The highest part of the island, which is flat-topped, is 600 feet above the sea. Fresh water may be obtained in small quantities. The islands are inhabited by a few fishermen, and are occasionally visited by pirates, as on the point between the Breakwater and the village the officers of H.M.S. Plover found a frame-work

\* The chart does not quite agree with this latitude and longitude.

† See Sheet V. and VI. of the East Coast of China.

with six buckets suspended, each of which on inspection was found to contain a human head.

202. Vessels bound for the river Min from the anchorage under the White Dogs should start with the ebb tide; the entrance bears N.W. b. W.  $8\frac{1}{2}$  miles from the Breakwater. When this distance has been run, a good look-out must be kept from the masthead for a small black rock 20 feet high (Rees Rock) on the southern side of the channel, which will be seen bearing about W.N.W.  $\frac{1}{2}$  W. The channel across the entrance is 2 miles, gradually decreasing to  $\frac{1}{2}$  a mile; there is a small knoll near the centre of the channel (at the mouth) on which as little as 9 feet has been found. The surveying vessels always entered to the northward of this knoll, the leading mark for which is to bring Rees Rock in one with the highest part of Woufou Island (Square Peak), which it will be bearing W.  $\frac{3}{4}$  N. H.M.S. Plover run in with these marks on at  $\frac{2}{3}$  flood, and never had a cast less than  $4\frac{1}{2}$  fathoms.

*Outer Min  
Reef.*

203. There is, however, a dangerous reef which shows at low water off the North Horn of the channel; when upon it the bearings are Matsou Peak, N.E.  $\frac{3}{4}$  E.; Sea Dog Rock, E.  $\frac{1}{4}$  N.; White Dog Peak, S.E.; Sand Peak, S.W. b. W.  $\frac{1}{4}$  W.; Sharp Peak, W.N.W.  $\frac{1}{3}$  W.; and Rees Rock is in one with the south peak of Woufou, or Square Island. As the knoll in the centre of the channel appears to be extending northerly, there is no doubt that the channel to the southward of it is at present (1851) the best.\*

*Commander  
Cracraft's  
directions for  
entering the  
Min south of  
the knoll.*

204. Directions for entering on the south side of the knoll will be given from Commander Cracraft, of H.M.S. Reynard, who has also supplied three sketches, which will prove highly useful to a stranger.† "It is high water at the White Dogs about two hours before the tide has done flowing at Rees Rock. Steamers or sailing vessels with a leading wind ought to leave the White Dogs about an hour before high water, and they will carry the tide with them (supposing their speed from 7 to 8 knots,) as far as Woga creek; if bound up the river,

\* Commander Mellersh states "that the entrance to the River Min requires to be entirely resurveyed. In the present state of the charts a risk is run in taking a vessel in: the banks having entirely altered since the chart was made 10 years ago."—*Remark Book H.M.S. Rattler*, 1853.

† See Admiralty Chart, River Min.

they should then anchor and wait for low-water slack tide before proceeding further. The flood tide sets to the southward, and the ebb to the northward, right across the bar ; in the N.E. monsoon, therefore, if the wind should come scant after a vessel has passed the knoll, the ebb is a weather tide. The following marks will lead a vessel safe through the channel to the southward of the knoll in the deepest water : Bring the Breakwater (a remarkable rock close to the White Dogs) under that part of the North Island, Tongsha, which resembles a dome flattened, and keep it in that position ; the Breakwater will then bear S. E. b. E. As soon as the high land to the northward of the river is clearly distinguished, the 'Sharp Peak,' (the foreground, in which cannot be mistaken,) will appear nearly under but a little to the northward of a very similar shaped but rather rounded peak in the rear of it. When the White Dogs become indistinct, let the Sharp Peak be kept open of the Round Peak against the edge or shoulder of it, to the northward ; and this will bring a vessel safe as far as Rees Rock, which may be passed from half a mile to  $1\frac{1}{2}$  miles to the northward ; the distance must be judged by the eye. Two islands called the Brothers, apparently close together, in the middle of the entrance of the river, will now be seen ; the inside one has a whitewashed mark on its southern face, this mark kept open to the northward of the other island bearing N.W. b. W.  $\frac{1}{2}$  W. will lead over the inner bar past Sharp Peak point, in the deepest water.\* In working in, tack to the northward as soon as the mark appears to the southward of the outer Brother. After having cleared the entrance, keep as nearly as possible in the centre of the channel. The mud banks shelve considerably ; the

\* Commander W. G. Luard states that " the whitewashed patch on the Inner Brother Island, one of the leading marks for the inner bar of the River Min, is difficult to be distinguished, except in clear weather, from the outer part of the bar. In such case vessels should keep the south end of the inner island in one with the north end of the outer Brother, so that no opening may appear between them.

" The north end of Hokang Island might be mistaken for the outer Brother, but for a remarkable steeple rock between it and the Brothers.

" The water on the bar appears less than that marked on the chart: at low water 2 to  $2\frac{1}{4}$  fathoms." —*H.M.S. Serpent's Remark Book, 1851.*

one at the outer entrance of the Woga creek, where the opium vessels are stationed, should have a wide berth given it."

*Sharp Peak Point.*

205. Sharp Peak Point may be passed at a cable's length from high water mark. After having passed it, the mud banks on each side shoal suddenly ; there is time, however, for a quick working vessel with a good leadsman to stand into a shoal east ; the 2 fathom channel here will be found about 3 cables' lengths wide at low water.

*Rock off Woga Point.*

206. Off the point under Woga Fort (a circular building on the summit of the southern hills of Woga Island,) is a sunken rock on which the Zephyr merchant ship struck, it lies three quarters of a cable's length from the shore ; when on it the following bearings were obtained : Woga Fort, N.E. ; Sharp Peak Point S.E. b. E.  $\frac{1}{4}$  E. There is as much as 5 and 6 fathoms inside of it, and on it, according to H.M.S. Childers, 12 to 8 feet.

*Rock off Temple Point.*

207. There are two patches with only  $2\frac{1}{4}$  fathoms on them off the Temple point, and a rock with only 6 feet over it at low water has recently been discovered on the southern of the two ; the bearings from it are Sharp Peak E.  $\frac{3}{4}$  S. ; the Temple N.  $\frac{3}{4}$  E. ; Woga Point in one with Sharp Peak places a vessel on the rock.

*Mud spit from the West Brother.*

208. From the West Brother the mud extends westerly 1 mile ; on its northern edge are a patch of rocks which are covered at a quarter flood ; from them the West Brother bears E.S.E.  $\frac{1}{2}$  E., and the Temple N. b. E.

*Kinpai Point.*

209. From the Temple to Kinpai Point is not quite 2 miles W.b.S. This passage should never be taken except at slack tide, and then with a personal knowledge. The tides render a vessel totally unmanageable, even in a fresh breeze, and the channel is barely a cable's length \* across. The only directions that can be of use are to pass between the two islands at the entrance (both of which have rocks and mud spits extending easterly from them), then round Kinpai Point close, keeping the southern shore on board until the vessel approaches the Ferry House, which is  $1\frac{1}{2}$  miles above the Point, and is the only house on the low land on that side close to the water,

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\* The chart gives the distance across from White Fort to Kinpai Point as two cables' lengths.

from whence the vessel may edge off to the northward and steer for Wedge Island on the other shore ; it bears from the Ferry House W.S.W.  $\frac{1}{2}$  W., and may be passed at 1 cable's length.

The Wolverine Rock, with 13 feet over it at low water, bears *Wolverine Rock.* S.W. b. W.  $\frac{1}{2}$  W. from the north end of Kinpai Point; the distance between it and the shore is  $1\frac{1}{4}$  cables' lengths.

The Vixen spit at the eastern end of the middle ground lies *Middle ground.* 3 cables' lengths to the S.E. of Kinpai Point; the distance from  $1\frac{1}{2}$  fathoms on its south edge to the southern shore is rather better than 1 cable's length. The channel on the north side of the middle ground is the narrowest, and on the mud, extending from the north bank, are rocks which will require to be marked at high water should the channel on this side ever be used.

210. After passing Wedge Island, Tree Point will then be *Tree Point.* seen on the southern bank, off which, bearing N.  $\frac{3}{4}$  W.,  $4\frac{1}{2}$  cables' lengths, is a half tide rock ; when upon it the Ferry House is in *Half tide rock.* one with Kinpai Point. On the northern shore above Wedge Island are two rocky points extending 1 cable's length from the embankment. This reach lies S.W. b. S. and N.E. b. N.

211. At the distance of 6 miles from Kinpai Point, the river narrows again to  $3\frac{1}{4}$  cables' length ; the land rises on each side from 1500 to 2000 feet. The town of Mingan is built *Mingan Pass.* on the left bank of the river, 1 mile within the strait. The river continues narrow for 3 miles, the depth of water being above 12 fathoms, and in some places no bottom with 29 fathoms. Vessels will have some difficulty in getting through this strait, unless with a leading wind ; the better plan will be to tow through, using the fore and aft sails when the flaws permit of it. In some places the shores are steep-to, (H. M. S. Plover was boomed off once or twice,) but the main object should be to keep the ship in mid channel, as there are not only flaws but eddies to contend with ; several vessels have suffered in consequence of not doing so. Rather more than a mile above Mingan and on the same side of the river is an islet crowned with a fort, off the east point of which H.M.S. Scout grounded and filled. Captain Hay, when employed to *Hay Road.* raise her, anchored H. M. S. Columbine and Medea to the northward of Fort Island, 400 yards off the shore in from 8 to 12 fathoms. In running for this anchorage the mud spit which

extends northerly 1 cable's length from Fort Island must be cared for. At the upper or south end of the gorge are two islets on the right or east bank of the river (which is the left ascending); in going up, leave these islets on the port hand. Half a cable's length off the north point of the first islet is a rock on which H.M.S. *Spiteful* struck; and there is also a shoal patch of  $1\frac{1}{2}$  fathoms at low water, 2 cables' lengths W.N.W. from the island.\* Having passed this island, vessels ought to keep along the eastern shore until they come to a low flat rock above it, and from this rock steer for the Pagoda on *Losing Island*. S. b. E. from the Pagoda 2 cables' lengths is a sunken rock showing at low water spring tides. The river is navigable for vessels three quarters of a mile above the Pagoda, but the channel being narrow and the tides strong, the anchorage to the eastward of it is generally preferred.

\* 9th April 1846.—H.M. Sloop *Espiégle* struck on a rock in the River Min, having only  $1\frac{1}{4}$  fathoms on it at low water. The following bearings were taken whilst that sloop was on shore:—

Losing Pagoda, S.W.  $\frac{1}{4}$  W.

North end of Pagoda, South Island, W.S.W.  $\frac{1}{4}$  W.

North-east extreme of island at the south end of the George N.E. b. E.  $\frac{1}{4}$  E. a quarter of a mile.

South extreme of smaller islands, S.E.  $\frac{1}{4}$  S.

Another rock, with 2 fathoms in it, lies in a W. b. S. direction from the above, at about half a cables' length distant. There are 4 fathoms between these rocks.—*Nautical Magazine*, vol. 1847, page 38.

6th June 1851.—H.M. Steam Sloop *Salamander*, John Spencer Ellman, Commander, grounded on a mud bank in the River Min. The following bearings were taken from the ship whilst on the bank:—

Pagoda on the south end of Losing Island, S.W.  $\frac{1}{4}$  W.

The north-east end of Losing Island, W.  $\frac{1}{4}$  N.

North end of the island, by the *Spiteful Rock*, N.N.E.  $\frac{1}{4}$  E.

Centre of the small island, E.N.E.  $\frac{1}{4}$  E.

Commander Ellman states that—"By the Admiralty chart of Captain Kellett's survey in 1843, the ship's position was exactly in mid-channel, with 7 and 6 fathoms a-head and astern; and so completely altered was the river in this part, that the bank extending from the east end of *Losing Island*, and which was then only covered at high, had now from 10 to 12 feet on it at low water, evidently showing that a new channel is forming on that shore; and a long bank of full a mile in extent showed dry at low water in the middle of the river (where formerly there was from 3 to 5 fathoms water). This bank has considerably narrowed the channel on the southern shore."—*Remark Book H.M.S. Salamander*, 1851.

212. The river turns abruptly to the N.W. immediately above Losing Island. The city of Foochowfoo stands on the left bank of the river 9 miles above the Pagoda. During 1841 the navigation of this river 4 miles below the city was obstructed by piles of stones and stakes, which have occasioned great detriment by obstructing the flow of the tide, causing the sand banks to accumulate and shift. H.M.S. Plover observed that the knoll at the entrance had increased; there is no doubt but that it is one of those rivers where changes may be looked for each season; therefore pilots should be used, if they are to be obtained.

213. On leaving the river, vessels must take care that the set of the tide across the channel between Sharp Peak and Rees Rock does not force them on the shoals on the north side of the channel. Very fair anchorage in 6 fathoms, where they may stop a tide, will be found with Rees Rock bearing S.S.E.

*Set of the ebb tide near Rees Rock.*

The junks generally use the channel between Woga and Sharp Peak Islands, but to the north of the latter island there are several sand banks which show at low water, and there are not more than 6 feet water between the banks.

214. Due north of the western White Dog is a large island called Matsou: between the two and N. b. E.  $\frac{1}{4}$  E. from the *Matsou Island*. White Dog is a precipitous black rock 60 feet high, surrounded by reefs, called the Sea Dog. S.W. b. S., 1 mile from the *Sea Dog*. *Sea Dog*, is a rock (Hebe reef), showing when there is a heavy *Hebe Reef*. swell, and at low water spring tides. When on it the west end of Matsou bears N.N.W.  $\frac{1}{4}$  W., and the Breakwater Rock Tongsha Island White Dogs S. b. W.  $\frac{2}{3}$  W.; the east end of *Tongsha Island*. Reef Island (off the east point of Matsou) in one with Changchi Peak bearing N. b. E.  $\frac{1}{2}$  E. will place a vessel to the westward of it. Between the Sea Dog and Matsou are two other rocks above water (the Sea Cat and Flat Rock); they should not be approached within 2 cables' lengths. On the western side of Matsou will be found a good roadstead in the N.E., and *Anchorage*. there is a deep bay on its north-western face where good shelter may be had in the S.W. monsoon; fresh water will be found in *Fresh Water*. both bays. From the peak of this island the outer Min reef bears S.W.  $\frac{3}{4}$  W.  $7\frac{1}{4}$  miles.

*Changchi  
Island.*

215. North-east 3 miles from Matsou is another island called Changchi by the Chinese, having two remarkable sharp peaks on it; the highest, 1,030 feet above the sea, is in  $26^{\circ} 14' N.$ , and  $120^{\circ} 1' 7'' E.$ ; the bay on the south side of this island affords good shelter in the N.E. monsoon. Vessels entering from the north may round its south-eastern horn close and anchor within the point, in 6 fathoms. Either this or the anchorage on the western side of Matsou should be used by vessels bound to the river Min during the N.E. monsoon, as they may always get to the bar from hence at the precise moment they require it, but from the White Dogs a vessel will barely fetch. On the northern face of Changchi are several islets, the largest of which (Gordon Islet) bears north  $2\frac{1}{2}$  miles; there is no safe passage between them. North-east  $1\frac{1}{2}$  miles from Gordon Islet is a small black rock with a reef west of it.

*Tinghae Bay.*

216. On the main to the west of Changchi at the distance of 13 miles is Tinghae Bay, with anchorage in  $2\frac{1}{2}$  to 3 fathoms; there is a walled town here, but it is nearly deserted. Three miles to the southward of Tinghae Bay are the square rocks (four islets above water), with reefs extending northerly from them. To the N.E. of the square rocks is Crab Islet, surrounded by reefs. In the channel between Crab Islet and Tinghae Point are two islets, but Crab Islet must have a berth of half a mile.

*Wanki Bay.*

217. The junks frequent Wanki Bay, 6 miles to the E.N.E. of Tinghae, which although affording them good shelter cannot be recommended for larger vessels. There is a rock near the centre of the bay 7 cables' lengths from the shore, showing at low water; Pekyau Point bears E.  $\frac{1}{2}$  N. from it, and the nearest Claret Rock S.E. b. S.

*Claret Rocks.*

The Claret Rocks lie  $1\frac{1}{2}$  miles to the south of the east point of the bay. Three of them are from 20 to 30 feet above the sea. They are surrounded by sunken rocks: the southernmost of which bears S.W.  $\frac{1}{2}$  S., 5 cables' lengths from the South Claret; when on it, the hill over Tinghae Bay bears W.  $\frac{1}{3}$  N., and the summit of Matsou S. b. E. The northern rock lies N. E.  $\frac{1}{2}$  E. 1 mile from the North Claret, with the north end of Gordon Islet in one with a small islet beyond it bearing E.S.E.  $\frac{1}{2}$  E. Pekyau Point lies 5 cables' lengths to the north of the rock; there is a channel between them, but the sunken rocks lying off the Point

narrow it to 2 cables' lengths ; a stranger, therefore, should pass to the south of the Claret Rocks and haul up when the village in Wanki Bay bears north.

The Pastel Rock lies west 1·2 miles from the south point of *Pastel Rock*. Changchi Island. Half a mile S.E. b. S.  $\frac{1}{4}$  S. from the islet, off the south point of Changchi Island, are two rocks always above water.

N.E. b. E.  $\frac{1}{2}$  E. from the south-west point of Changchi, and with a channel between them are three peaked rocks (the Trito) 50 feet high.

218. The eastern end of the mainland (Ragged Point) lies *Ragged Point*.  $5\frac{1}{2}$  miles to the E.N.E. of Wanki Bay. It is a narrow peninsula, in some places only half a mile across. A quarter of a mile off the east end of the point is Diplo Islet, having a reef three quarters of a cable's length east of it. The junks use the passage between Diplo and the main, but vessels have no business in it, as the tides are strong.

219. Alligator Island or Tungsha lies  $22\frac{1}{2}$  miles due east of *Alligator Island*. Matsou Island, and bears from the south end of the White Dog Islands N.E. b. E.  $\frac{1}{2}$  E.  $25\frac{1}{2}$  miles. It is a barren rock, about 100 feet above the sea, and is in  $26^{\circ} 9' N.$ , and  $120^{\circ} 25' 7'' E.$ \*

220. N.W. b. W.  $12\frac{1}{2}$  miles from Alligator Island is Larne *Larne Rock and Islet*. Rock, which is low and flat, with a reef 2 cables' lengths north of it. N. b. E. from Larne Rock is Larne Islet with reefs extending from its north and south ends. It is about 200 feet above the sea, with large boulders sticking up here and there ; near its summit are three houses.

221. Black Rock lies  $7\frac{1}{2}$  miles to the W.N.W. of Larne Islet; *Black Rock*. the channel between it and Ragged Point is 6 miles wide. E.N.E. from the Black Rock is a reef which shows at low *Reef*. water. When on it Larne Islet bears S. b. E.  $\frac{1}{2}$  E. 5 miles, the north end of Tungying E.  $\frac{3}{4}$  S., and Cony Island N.W.  $\frac{2}{3}$  N.

222. The Peak of Tungying Island, in  $26^{\circ} 23' 2'' N.$ , *Tungying Island*.  $120^{\circ} 31' E.$  bears from Larne Islet E.  $\frac{1}{2}$  N. 14 miles. This island, the easternmost on this part of the coast, rises to the height of 853 feet. Its appearance is level and flat, with steep cliff shores ; there is a large village on the western side. Off its south extreme is a ledge of rocks ; and half a

\* The chart makes it one mile further east.

mile to the north-westward is another island, appearing as part of the larger except on a N.E. b. N. or S.W. b. S. bearing. Under this island good anchorage will be found in the N.E. monsoon. W.N.W. 20 miles from Tungying is a remarkable *Cony Island*. It has a reef extending from its northern shore. Otherwise the channel, which is 2 miles wide, between it and the two islands north of it is safe. There is a rock awash at low water 1·4 miles east of the cone, and another S.E.  $\frac{1}{3}$  E. 1·8 of a mile; when upon the latter the south end of Spider Island bears W.  $\frac{1}{2}$  N.

*Spider Island* 223. Spider Island lies  $4\frac{1}{2}$  miles west of Cony Island; the highest part of this island is 620 feet above the sea. There is a large village in a bay on the south, and good shelter from north-eastern winds may be found on its west side. Off the S.W. point is a reef; on the N.E. face are four islets, and an islet on the N.W., between which and Spider Island is a half tide rock. Between Spider Island and the main which is  $5\frac{1}{2}$  miles distant, there are, counting N.W. islet above described, three islets. The centre one has a sandy isthmus and a mud bank extending westerly from it, but the channel between it and N. W. islet is clear. The passage between Isthmus and Inside Islet is obstructed by a reef which extends 6 cables' lengths from the latter to the E.N.E. The channel between Inside Island and the main has from 6 to 4 fathoms water, and is 1 mile wide. South of Isthmus Island are the Larva Rocks, four of which are above water; reefs however extend northerly from them rendering the passage between them and Isthmus Island barely 1 mile wide.

*Samsah Inlet*. 224. The entrance to Samsah Inlet lies 10 miles to the west of Spider Island. It is  $1\frac{3}{4}$  miles wide, with deep water and strong tides. On the east side close to the entrance will be seen a small bay with a fort in it. Here the junks remain for a tide, but the water shoals too suddenly for vessels that cannot take the ground. There is a rock in mid-channel off the Castle Point, bearings from which are Castle Point E.  $\frac{1}{4}$  N., centre peak of Cone Island N.  $\frac{1}{4}$  W., Steep Rock N. b. E.  $\frac{3}{4}$  E. The west end of Cone Island in one with the highest peak of Crag Island will lead a vessel to the eastward of it.

H.M.S. Plover ran to the westward leaving a large island on the port hand, and then hauled up to the north, and found

anchorage on a middle ground three quarters of a mile from the shore, and  $5\frac{1}{2}$  miles above the island. The bay extends to the northward 13 miles beyond the Plover's anchorage, terminating in a sandy isthmus, over which Fuhning Bay was seen. The bay also runs back to the West and S.W.; in the latter arm is the town of Ningleheen.

225. Four miles to the southward of Samsah entrance is the opening into another gulf, which is 10 miles deep; there are 30 fathoms water at the entrance, but circumstances did not admit of its being examined. Off the entrance to the gulf and 8 miles to the S.-westward of Spider Island there are three islets (the Ray Islands); the Plover anchored to the westward of the westernmost one and found tolerable shelter. The tides here are very rapid, and a long swell rolls home into the bay with N.E. winds. *Ray Islands.*

226. Double Peak Island is very remarkable, the two peaks *Double Peak*. on its north end rising to the height 1,190 feet above the sea. It lies 3 miles to the N.E. of Spider Island, the only danger in the channel being the rocks already mentioned as lying off the north end of the latter (see article 223). There are two cone-shaped islands between Double Peak and Cony Islands, with channels too narrow for sailing vessels, but there is a good channel between the southernmost of these and Cony Island, in which reefs extend 3 cables' lengths North-easterly from the latter and the west point of the former is not steep-to. Off the west point of Double Peak Island, 7 cables' lengths, is a small islet with a rock above water on each side of it; good anchorage in the north east monsoon will be found to the S.E. of it. One and a half miles to the westward of the north end of Double Peak is Flap Islet, a low flat island with a sunken rock off its southern point; there is no passage fit for vessels between Flap Islet and the main land, but there is good shelter opposite the first sandy bay within the point next to it. Here were found six piratical junks plundering part of a convoy that they had captured. To the northward of Flap and Double *Main land* Peak Islands the coast trends north for  $9\frac{1}{2}$  miles; off it are *north of Double Peak Island.* several rugged rocks which it will be advisable for vessels to give a berth to and not close the shore under 6 fathoms.

227. The main land then falls back to the westward forming a deep but shallow bay, in which is the city of Fuhningfoo: *Fuhning Bay.*

the bay is 6 miles across at the entrance, and at the north end are a group of islands which extend 2 miles from the coast. H.M.S. Plover anchored under the South-western (Fongho) which is the largest, but the shelter was not good.

*Pihseang Island.* 228. N.E. b. E. 10 miles from Double Peak Island is a group of islands called Pihseang or Tsilhsing, the northern one (Town Island) is the largest; there is a small cove at its S.W. angle which will afford shelter to one or two small vessels; between the northern and southern islands of the group there is a channel free from rocks, but the intervening space is thickly studded with fishing stakes. Due north 12 miles from the

*Fuhyan.* Pihseang group is a high island (Fuhyan, 1700 feet above the sea), with a good harbour between it and the main; the anchorage in which is on the Fuhyan side, opposite to an islet and a Joss house. Good water is easily obtained here. To the

*Water* southward are three entrances: the first, between Fuhyan and Chuhpi, is only 1 cable's length wide, and vessels using it are apt to get becalmed under Fuhyan. The Chuhpi pass (between Chuhpi and Angle Island) is 8 cables' lengths across, but there is a patch of low rocks (which must be left to the westward) to the S.W. of Chuhpi that narrow the channel to 5 cables' lengths, and there is a sunken rock off the N.E. point of Angle Island. The channel between Angle Island and the main is only fit for small junks or boats.

*Awash Rock.* 229. E.S.E.  $\frac{1}{2}$  E. 10 miles from Fuhyan and N.E. 15 miles from Pihseang is a rock nearly level with the water's edge; it is in  $26^{\circ} 53' 3''$  N. and  $120^{\circ} 34' 3''$  E.

*Tae Islands.* 230. E. b. N. 16 miles from the eastern point of Fuhyan are the Tae Islands, the easternmost island of which rising to the height of 618 feet above the sea is the largest, and is remarkable for its table top. Bad shelter can be had under this island as close as a vessel can safely go (say half a cable's length); it is in  $26^{\circ} 59' 5''$  and  $120^{\circ} 44' E.$  S.S.W.  $\frac{1}{4}$  W. from the easternmost Tae Island are two rocky islets (Straw Stack) about 100 feet high; they almost join. To the N.E. of the northern Tae Island is a remarkable mushroom rock 260 feet above the sea.

*Incog Islands.* Between the Tae group and Fuhyan are the Incog Islands, too small to afford shelter; they are low and flat with steep cliffs. Three miles to the N.W. of these islands is Solitary Rock, with a reef extending 2 cables' lengths from it easterly; the

depth of water between Solitary Rock and the main, from which it is  $3\frac{1}{2}$  miles distant, varies from 7 to  $5\frac{1}{2}$  fathoms. Vessels passing inside the Tae group should keep well to the *westward of the Tae group.* *Reefs to the* *westward of* *the Tae group.* explored as it ought to be; two reefs which show at low water have been found; one with the Mushroom bearing E.S.E., and the west end of East Incog Island S.W. b. W.  $\frac{3}{4}$  W., on which bearing it is in one with the east end of Fuhyan. The Table islet bears from the other E.S.E.  $\frac{3}{4}$  E. and the west rock of the Tae group N.E. b. E.  $1\cdot 1$  mile.

231. N.E. b. E  $\frac{1}{3}$  E.  $7\frac{1}{2}$  miles from Table Island, are three *Seven Stars.* small rocky islets with several rocks awash near them. They are called by the Chinese the Seven Stars. Three miles to the N.N.W. of the Seven Stars is Cleft Rock, 50 feet above water. *Cleft Rock*

232. N.W. 14 miles from the Tae group are the harbours *Pihquan Harbour.* of Pihquan and Namquan. The former is formed by Pingfong and Chinquan Islands, and will afford good shelter in the N.E. monsoon to a vessel of 15 feet draught. Pingfong, the summit of which has three chimneys on it, is in  $27^{\circ} 9' 7''$  N., and  $120^{\circ} 32' 6''$  E. Off its S.E. point is a low rock which is never covered. Between this rock and Pingfong is a sunken rock. Vessels coming in from the northward round this rock, within a cable's length, and haul up for the south point of Pingfong, giving it and also the S.W. point a berth of 2 cables' lengths. The Pih pass between the north of Pingfong and the main is fit only for such junks as use sculls.

233. Chinquan Island lies  $1\frac{1}{2}$  miles to the S.W. of Pingfong. *Namquan Harbour.* The south point is a bold steep bluff having under it a rock which may be passed close; anchorage in 9 and 7 fathoms will be found on the Chinquan shore after a second rock has been passed. The depth of water shoals suddenly in the north part of the bay where the walled town of Namquan will be found. West of the north end of Chinquan and at the distance of 2 miles is the entrance to Namquan Harbour; on the point at the north side a little within the entrance is a town. South of the town point is a small rock which never covers, having rounded which haul up to the northward, giving the western end of the town point a berth of  $1\frac{1}{2}$  cables' length, to avoid a sunken rock off it, which shows at half flood. When within the point anchor in

14 fathoms, as the mud banks rise almost vertically. On the south side of the entrance is a small fort with a few houses. The narrowest part of this channel is 6 cables' lengths wide. The strong tides and baffling winds make it necessary to have a boat ready to tow the vessels head round. H.M.S. Plover traced the sound 15 miles to the N.W. from Town Point, and was then in 8 fathoms. The channel, which is, however, narrow and tortuous, is surrounded by high hills; there was apparently little or no traffic. Over these harbours is a remarkable high peak, Piquan Peak, in  $27^{\circ} 18' 8''$  N., and  $120^{\circ} 28' 7''$  E.

*Coast line north of Pihquan.* 234. From Pihquan Harbour to Pingyang Point the coast line trends N.E. b. N., and the distance is 19 miles. Twelve miles from Pihquan Harbour is Tanue Bay, which is too shallow to afford shelter to anything drawing over 10 feet water.

*Gap Rock.* 235. To the southward of Tanue Point is Gap Rock, a low *Farmer's Rock*. islet; N.E.  $\frac{1}{2}$  E. from which 4·7 miles is Farmer's Rock, showing at low water. It lies  $3\frac{1}{4}$  miles from the shore, and when on it Pingyang Point bears N.N.W., Namki Peak E. b. N. From Pingyang Point the coast line takes a North-westerly direction and is fronted by mud banks, on which are several small islets and rocks; these banks at 3 miles from the land are dry at low water. At the distance of 11 miles from Pingyang is the embouchure of the Shwingan River, by which the commerce of Wouchoofou is maintained; there are only 9 feet on the bar at low water. Off the entrance are the Tsang islets, four in number, the southern of which is the largest; in the channel between it and the mud bank at the entrance of the river there are only 9 feet. Between the south islet and the one next to it, there is a channel close to the latter in which 4 fathoms will be found, and inside the two central islands is a depth of 3 fathoms; the space, however, is confined.

*Namki Islands.* 236. N.E. b. N. 32 miles from the Tae group are some islands, the largest of which, Namki, 737 feet above the sea, has a good harbour (during the N.E. monsoon) on its South-eastern side, the eastern horn of which is in  $27^{\circ} 26' 3''$  N., and  $121^{\circ} 6' 6''$  E. Vessels should not pass among the islets which form the S.W. part of this group as there are many reefs which cover at high water. The westernmost island (Turret) makes like a cone; it has reefs to the northward of

it. The southern islet is a castellated rock, and is distant from the rest of the group 5 miles.

237. N.N.E. from Namki is another group, the largest *Pihkishan Islands*, of which, called Pihkishan, is in  $27^{\circ} 37' N.$ , and  $121^{\circ} 12' E.$  There are four small islets close to it which protect the anchorage on the S. side of Pihkishan Islands from the easterly swell. West 11 miles from Pihkishan, with five small islets intervening, is another group of one large and four smaller islets. The large one is called Tungpwan or Brass Basin Island. There is anchorage on its S.W. face in 8 fathoms between it and the remainder of the group, but the shelter is not so good as that on the south side of the Taepih *Taepih Group*, islands, lying 3 miles further to the N.W., under which smooth water will be found in 4 fathoms in the N.E. monsoon. The Taepih Islands lie 4 miles to the N.E. of the Tsang group, already mentioned (article 235) as lying off the entrance to the Shwingan River. In working up to the northward of the Taepih and Tungpwan groups, the shoal water 2 fathoms will be found to extend 8 miles from the foot of the hills on the main; on the eastern edge of which  $6\frac{1}{2}$  miles from Taepih is the Pangpeto reef, visible at low water, when on it West Taepih bears S.S.W.  $\frac{1}{2}$  W.; Southern Tseih, E.S.E.  $\frac{1}{2}$  E.

238. The Tseih Islands\* (three in number, north, south and east) lie 8 miles N.N.W. from Pihkishan. Vessels have no business in the space between Pihkishan and these islands (the clusters of rocks are interspersed with reefs covered at half tide), but they should pass to the eastward, unless bound for Bullock Harbour or intending to go through the Sanpwan Pass (which vessels of 12 feet draught can do). If bound for Bullock Harbour from the southward, pass between Tungpwan and Shroud Islet, taking care to avoid a sunken rock which lies north of the rocks, immediately west of Shroud, and the reef north of the small islet  $2\frac{1}{2}$  miles N.N.W. of Shroud. The entrance to the harbour bears N.E. b. N. 10 miles from Tungpwan; on the eastern side of the entrance are the Tseih group, and to the west is Fakew, a high island with bold cliffs, the distance between these islands is 2 miles: between Tseih and Fongwhang (a large island 3 miles north of it), is Pwanpeen Island, off the west end of which is the anchorage

\* See sheet VII. of the East Coast of China.

in  $5\frac{1}{2}$  fathoms. There is a channel for vessels between Pwan-steen and the Tseih group, which is 3 cables' lengths wide. Fongwhang Island, the largest of the group, is 6 miles long and  $2\frac{1}{2}$  miles at its extreme breadth; its eastern extreme is a bold perpendicular head. Between it and Pwansteen is a channel for junks.

*Sanpwan Pass.* 239. Vessels bound to the Sanpwan Pass pass to the westward of Fakew, noticing that there is a rock with 1 foot over it at low water bearing N.N.W.  $\frac{1}{2}$  W., rather more than 1 mile from its S.W. point; when upon it the west point of Fongwhang is in one with the east point of Great Sanpwan, bearing N.E.  $\frac{3}{4}$  N. To the N.W., 4 miles of Fakew, is the Island of Niaow; the channel lies between these two, and between Niaow and Fongwhang, where, from both shores being shoal, it is only 6 cables' lengths across. Great Sanpwan Island is almost connected with Niaow, there being but a very narrow channel between them. Immediately off the S.E. point of Great Sanpwan is a bold perpendicular islet, which vessels leave to the westward, passing between it and the islet on the north face of Fongwhang (Little Sanpwan); the winds being variable and the tides uncertain, unhandy vessels will have difficulty in clearing this channel, especially if a strong northerly wind has been blowing, as there is usually a heavy swell at such times setting into it.

*Coin Island.*

240. Coin Island, the north-eastern of the Fongwhang group, is in  $27^{\circ} 50' N.$ , and  $121^{\circ} 15' E.$ ; there are three rocks N.W. from it, and to the W.S.W. is a low flat island (Flask Island) with rocks off its southern end, and two rocky islets to the westward. Between the islets there is a safe passage carrying 8 fathoms.

*Wanchewfou.*

241. Vessels bound for Wanchewfou after passing the Coin Island should steer N.W.  $\frac{1}{2}$  N., so as to leave the Cliff Rocks to the N.E. and the north rock of Great Sampwan Island to the southward. Having passed the latter, edge away to W. b. N. for the south point of Hootow (a large island 2 miles to the north-westward of Great Sampwan), leaving Hokeen (a remarkably steep bluff island) to the southward. Off the south point of Hootow (and opposite to Hokeen) is a sunken rock  $1\frac{1}{2}$  cables' length from the shore, which will be avoided by opening the west point of Hootow Island to the

southward of a white rock in Hootow Bay. South of the white rock there is a middle ground confining the channel to 7 cables' lengths. Good anchorage in 4 and 5 fathoms will be found to the S.W. of the white rock, but the bay within it is shoal. From the west point of Hootow the entrance to the *Wanchow Point* river bears W.N.W. 6 miles, and will be known by an isolated range of hills, with a square fort at the east, and a small walled town at the west end. The depth of water varies from 3 to 4 fathoms in the channel, which is more than a mile wide, but the mud dries upon either side, and it shoals suddenly. Having passed the range of hills keep the left bank of the river or north shore on board, until the first hill on the flat island on the south side of the river (*Wanchow Island*) bears S.W. b. S., *Wanchow Island*. when the vessel will have passed a middle ground which is half a mile from the south shore, and  $1\frac{1}{2}$  miles to the E.N.E. of this hill. The highest part of Hootow in one with the south foot of the hills at the entrance bearing E.  $\frac{1}{4}$  S. will place a vessel on its north edge. From abreast of this middle ground edge over to mid channel, passing a large walled town on the north side of the river, then gradually haul over to the first point on the south side, where the hills come down to the water's edge, passing a point with a circular fort, and a building like a large jar upon it close. Vessels ought not to go above  $2\frac{1}{2}$  miles beyond the Jar point; they will then be in from  $3\frac{1}{2}$  to 7 fathoms water. From this anchorage the town of *Anchorage*. Wanchewfoo is  $5\frac{1}{2}$  miles, but the channel is too intricate for a stranger. The water of this river contains a great deal of sediment, and is not used by the inhabitants for culinary purposes. From the summit of Fort Hill the canals with junks in them were traced to the westward, where they probably communicate with the Shwingan River, which appears to monopolise the commerce of the district, as but few junks were seen on the Ngan River, notwithstanding its capabilities for navigation. The mud spit from Wanchon Island extends 6 miles to the south-eastward, leaving a shallow channel (in *Shallow channel between Wanchow and Niaow islands*) between it and Niaow Island.

[242. **Junk Island** is a low rocky island on the north side of *Junk Island*. Hootow Island. The channel between them, and between *Junk Island* and the main, can only be used by small junks.

*Lotsin Bay.*

243. To the northward of Junk Island is Lotsin Bay, which runs back 20 miles, in the southern parts of which there is good anchorage, but the upper end is shoal except a narrow channel (Hebe Lock) which forms the island of Taou. Two miles east of Hootow is Quangta Island, under the west side of which H. M. S. Plover anchored, but the water was found to shoal very suddenly. There is a channel between Quangta and the Cliff Rocks to the southward, and also between Quangta and Taou to the northward, taking care to avoid the islets and rocks off the N.E. part of Quangta. Near the east point of Taou is a bight (with an islet off each point) in which the junks are fond of taking shelter. It is, however, confined, and vessels will find better anchorage to the eastward under either Taluk or Seoluk Islands. The latter consist of 3 islets laying north and south of each other.

*Seoluk.*

244. Taluk is a higher island, being 770 feet above the sea; it lies  $1\frac{1}{2}$  miles to the north of Seoluk. In the channel between them there is a depth of 7 and 8 fathoms. West of Taluk is Chinki, a low flat island with a large village on it. The anchorage is between these in from 3 to 4 fathoms; the bay to the N.W. of Chinki is shoal, in its head is the entrance to Hebe Lock (communicating with Lotsin Bay). To the N.E. of Chinki 8 cables' lengths is Towan Island, with a passage with 4 fathoms water between them, but as there is a sunken rock in the centre of the channel, and a reef runs out from the north point of Chinki Island, vessels have no business here. Between Towan Island and the rocks off the north end of Taluk Island, the passage is 1 mile wide.

*Peshan Islet.*

245. East from Taluk  $5\frac{1}{2}$  miles is Peshan Islet, the easternmost islet of this group; being in  $28^{\circ} 5' 5''$  N., and  $121^{\circ} 31' 8''$  E., it is  $1\frac{1}{2}$  miles long from E. to W. On its northern face are three rocks; on its southern two islets. W. b. N.  $1\frac{1}{2}$  miles from Peshan is a low level island (Flare Island), and to the N.W. is Sugar Loaf Island, with a small islet N. of it. Between Sugar Loaf and Flare Islands there are a depth of 5 fathoms.

246. Songmen Point (the south end of Taowpung Island) lies N.N.E. 9 miles from Peshan; there are two flat rocks above water between them. The Bay (Yey-van) north-west of these rocks is shoal, and will not afford shelter. Penetra-

tion Pass, forming Taowpung Island, is only navigable for boats. Near the north end of the pass on the main is the walled town of Songmen. To the south-eastward of Songmen Point are several islands; the nearest (Sanshi) has a reef to *Tuowpung Island*. The westward, the outer islet of the three has a shoal off its N.E. end, there is a navigable channel between Sanshie and the rocks off the point, 1 mile broad. To the N.E. of Sanshi, 3 miles, are the Stragglers and Shetung Islands, the latter, the northern and highest island of the group, has a reef 3 cables' lengths from its S.W. point, and many rocky islets off its south end, between which and the Stragglers there is *Shetung Island*. a channel carrying 6 fathoms water. Indifferent shelter may be found under Shetung Island. Between Shetung Island and the main are two islets; the eastern channel has  $3\frac{1}{4}$  fathoms in it, but the other two are too narrow for vessels. Junks lie inside the inner islet, where there is a small village. To the N.E. of these two islets are three rocks above water, the northern of which has a reef off its east end. The eastern island of the group (Soudan Island) bears N.E. 15 miles from Peshan; it is flat-topped, and has a reef on its south side.

247. Chikhok Island lies north 6 miles from Soudan Island. *Chikhok*. It rises very abruptly to the height of 760 feet, and has a broad yellow stripe on its south-eastern side, forming altogether one of the best leading marks on the coast. N.N.W. from it is Low Chikhok Islet with a half tide rock 3 cables' lengths N.W. of it; west of Chikhok 2 miles is Crookback Island, with many rocks about it. H. M. S. Plover anchored to the S.W. of Crookback Island in  $2\frac{3}{4}$  fathoms, but a long swell sets in here, and the channel to the north of it is too shallow to get through on that side. The same may be said of all the channels amongst the islands to the N.W. of Chikhok Island.

248. East of Chikhok Island, distant  $9\frac{1}{2}$  miles, is Heachu *Taichow group*. Islet (the southernmost island of the Taichow group). It is in  $28^{\circ} 23' 3''$  N., and  $121^{\circ} 55' 2''$  E. Off its south side is a remarkable finger rock. The islands extend 9 miles to the north of Heachu, and consist of two large and ten small. Between the two large islands is a good harbour, the approaches to which, both from the east and west, are free from danger. The southern large island, 750 feet high, is called Heata and the northern Shangta. The best anchorage

in the N.E. monsoon is under the westernmost islet off the latter. To the southward of the west point of Heata are two rocks, one of which (the western) shows at all times of tides. It lies S.S.W.  $3\frac{1}{4}$  miles from the highest part of Heata. The other which bears N.E.  $\frac{1}{2}$  N.  $4\frac{1}{2}$  cables' length from it covers at high water. When on it the highest part of Heata bears N. b. E.  $\frac{3}{4}$  E. Six miles N.W. b. W. from Shang Rock, the

*Squall Islands.* northern island of the Taichow group, are the two (Squall) islands but so close together as to appear as one, except on an E.N.E. and W.S.W. bearing. There are rocks off the N.E. and N.W. points, and a reef extends from its S.E. end. Junks take shelter under the western point in strong N.E. winds. Two and a-half miles to the eastward is Crate Island, a cliff islet; the channel between these has 8 fathoms in it, but the western end of Crate Island is not steep-to. Nine miles to the S.W. of the Squall Islands is the North Foreland, an islet at the southern side of Taichow Bay,  $1\frac{3}{4}$  miles from the main, with a depth of 10 feet inside of it. South of it are two other islands, and there is a

*Half tide rock.* half tide rock which bears west southerly from the north point of Shangta, S.S.E. from the North Foreland Island, and W.N.W. from Chikhok Island, on which bearing Low Chikhok Island is in one with it. In the channel between Squall Islands and Taichow Bay, the water shoals gradually towards the main; by not bringing the North Foreland to the eastward of south, vessels will keep in  $2\frac{1}{2}$  fathoms at low water.

*Chuhseu.* 249. The Island of Chuhseu (which is remarkable from a sharp cone 670 feet above the sea, and a beacon on its western summit) lies  $4\frac{1}{2}$  miles N.N.W. from Squall Islands. Good anchorage and a convenient watering place will be found under and to the S.W. of the cone in 6 fathoms, between Chuhseu and an islet with a reef off its south point. The entrance

*Water.* *Taichow River.* to Taichow River bears west 14 miles from Chuhseu Island; on the bar (which is 8 miles in extent) as little as 8 feet will be found at low water. When inside the headlands, there are as much as  $4\frac{1}{2}$  and 5 fathoms. On the south bank of the river is the walled town of Haimun, 4 miles above which the river separates into two branches, one taking a N.W., the other a S.W. direction. The city of Taichowfoo is on the north branch of the river, and about 24 miles in a direct line from Haimun.

The channel between Chuhseu Island and Mud Islet (a hill on the mud on the north side of Taichow bay) is shallow, having only 2 fathoms in it. North 1·3 miles of the western islet off Chuhseu is a rock showing at low water.

Between Chuhseu and Squall Islands are four rocks, and S.E. b. E.  $\frac{1}{3}$  E. from the former  $2\frac{3}{4}$  miles is Fir Cone, a solitary rock. East, a little northerly, 7 miles from Chuhseu Island is Tungchuh or Bella Vista Island, the eastern- *Tungchuh or Bella Vista Island.* most of this group of islands ; it is 700 feet high, and in  $28^{\circ} 42' 2''$  N., and  $121^{\circ} 55' 1''$  E. Shelter may be had under its south side, but there is generally a heavy swell, that renders riding there unpleasant, and vessels had better gain the anchorage under Chuhseu Island already described, or endeavour to reach Ninepin Island. Reef Islands (two in number,) lie  $2\frac{1}{2}$  miles S.S.W. of it ; a reef extends north-easterly from the southernmost of the two. Midway between Reef and Chuhseu Islands are a cluster of rocks. The island of Gowtow, remarkable for four barren peaks, lies to the N.W. of Tungchuh 3 miles. The channel between them has not been examined ; there is generally a heavy swell in it. The low north-eastern promontory of Gowtow is an island at high water ; there is a half tide rock north 3 cables' lengths from its eastern end.

250. Barren Bay is formed between Gowtow and Kinmen *Barren Bay.* Islands ; it is  $2\frac{1}{4}$  miles wide at the entrance. Besides the reef just mentioned, there are rocks off the eastern point of Kinmen, and a mud spit off the N.W. point of Gowtow. Immediately to the S.W. of Kinmen and separated by a deep water channel, rather more than 1 cable's length across, is Ninepin Island, divided near the centre by a sandy isthmus, on which is the rock from whence the island is named. Very poor shelter in from 6 to 3 fathoms will be found between *Ninepin Anchorage.* Gowtow and this island, the deeper water being towards the latter. There is a channel to the westward of Ninepin Island, but not recommended, as there are casts of  $1\frac{3}{4}$  and 2 fathoms to the north of Ninepin, and between it and Pine Cone (an island  $2\frac{1}{2}$  miles N.W. from it). South of the west end of the Ninepin, 2 cables' lengths, is a rock which will be seen at half tide.

Fall Island is nearly 2 miles to the northward of Kinmen *Fall Island.* Island, with two rocks above and one below water off its west

end ; there is a safe channel between these islands, and also between Fall and Chain Islands, but Chain Islands are not steep-to.

*Fall and Chain Islands.* Chain Islands, three in number, bear from Fall Island N.W. b. W. 5 miles. South of the centre islands, at the distance of 2 cables' lengths, is a half tide rock ; there is a rock awash and two small islets off the west end of the southernmost island. Between the Chain Islands and Pine Cone Islands are four detached rocks.

Great caution ought to be used in approaching the main land inside the Pine Cone, Chain, and Sanmoon Islands.

*Hieshan Group.* 251. N.E. b. E.  $\frac{1}{2}$  E 17 miles from Tungchuh Islands are the Hieshan group, consisting of three inhabited islands and eight rocks, extending 4 miles in a N. and S., and 2 miles in an E. and W. direction, but too small and too detached to afford shelter. The southernmost, rising to the height of 320 feet, is the largest, and makes like a saddle, it is in  $28^{\circ} 50' 8''$  N., and  $122^{\circ} 14' 4''$  E. The rocks are steep, with remarkable cliffs. The sea has so much undermined the northernmost one, as to cause it to bear some resemblance to a large mushroom. N.E.  $\frac{2}{3}$  E. 1.7 miles from it is a sunken rock, with 8 feet water on it ; when upon it the N.E. islet (Cheng) is in one with the S.E. end of Cliff Islet, or Shaho, bearing S.S.W.  $\frac{1}{3}$  W. N.N.W.,  $2\frac{1}{2}$  cables' lengths from the Mushroom, is a rock which shows at low water. The inhabitants, who are Fokien men (and most likely pirates), call the islands Ungshan. The depth of water in their vicinity is 20 fathoms. Patahecock, the southernmost of the Kweshan group, bears North from the Heishans 32 miles.

*Reefs off the Hieshan Islands.*

*Montague Island.*

252. N.N.W.  $\frac{1}{4}$  W., 22 miles from the Heishan Islands, is Tantoshan or Montague Island in  $29^{\circ} 10'$  N., and  $122^{\circ} 2' 5''$  E. It is separated from the main islands by channels varying from 1 to  $1\frac{3}{4}$  mile wide, the navigation of which is obstructed by sunken rocks ; shelter, however, in the N.E. monsoon, will be under its S. and S.W. extreme. The island is 738 feet high, and nearly divided into two parts, the connection being a low shingly isthmus ; the northern portion is called Gore Island. South of Cape Montague, and at the distance of from 2 to 5 miles from the main, are six islets ; the southernmost (the Twins) is 9 miles from the cape. A rock awash at low water

has been lately reported  $3\frac{1}{2}$  miles S.W. from the larger and outer of the two. Opposite the middle islet of the five (Dike Islet), and which is the nearest to the main, is Nose Islet. Vessels passing between must bear in mind that neither of them are steep to. Nose Islet is nearly connected with Nyéwtew Island at low water.

253. Twelve miles S.S.W. from Montague Island is Leaming *Leaming Island.* Island, close off the east point of Sanmoon Bay. Vessels wishing to stop a tide or driven in by bad weather, will find good shelter in the N.E. monsoon to the westward of this islet; in running for which a berth of 2 cables' lengths must be given to the S.W. point of it, to avoid a reef. The depth of water in the bay shoals suddenly after the north peak of Leaming Island is brought to the southward of east. Sanmoon Bay will be readily recognised by a remarkable thumb peak, 800 feet above the sea, called by the Chinese Tafou, and by the opium vessels Alberts Peak. It stands on an island in *Alberts Peak.* the west part of Leaming Bay, and is in  $29^{\circ} 5' N.$  and  $121^{\circ} 48' 5'' E.$

254. S.W.  $\frac{2}{3}$  S.  $2\frac{1}{2}$  miles from Leaming Island, is Sanchesan *Sanchesan Island.* or Tripple Island, the depth between the two being 10 and 11 fathoms. West of Leaming Island, distant 6 miles, is a *San Moon Bay.* conical island (Cone Island), with a reef off its south end; and 6 cables' lengths N.W. b. N. of it is a small islet with a rock off its S.E. face. The south point of Tafou, with a cairn on it, is half a mile to the northward of this island. Four miles west from Cone Island is a small islet. Having passed to the southward of Cone Island, St. Georges Island will be seen bearing N.W. 4 miles; the bay shoals gradually, and the anchorage is half a mile south of it in 3 fathoms; there is a well of good water on this island, but it is difficult to be got at and is not plentiful. The bay to the northward of St. Georges Island is shoal and full of rocks; it extends a considerable distance, leaving an isthmus 7 miles wide between it and Nimrod Sound. There is an entrance into Sheipoo Harbour, 4 miles east of St. Georges Island, which is frequently used by the junks. Westward of St. Georges Island is a group of high islands (the largest of which is called Tinwan); there are several islets and rocks on the eastern face of this group, and between them and the main is a deep water channel 1 mile wide. S.W. from

Tinwan Island is the embouchure of a river, on the bar of which there is 4 feet, but inside, deep water. On the left bank of the river, 5 miles from Tinwan, stands the walled town of Kientyau. W. b. N. from Tinwan Island is the mouth of Ninghau River, on the north side of which (6 miles from Tinwan) is Quarry Island, to the southward of which there is good anchorage in 6 and 4 fathoms; a mud spit extends from Quarry Island towards Tinwan Island 2 miles. Between Kientyau and Tautew Point the hills rise abruptly from the coast line to the height of 1,000 feet; but the water shoals to 2 fathoms in some places, at the distance of 2 miles from the shore.

*Sheipoo Roads.* 255. Vessels bound for Sheipoo Roads may pass close to the northward of Gore Island (the north portion of Montague Island), and run in due west for the two forts which will be seen on the summit of the island Tungmun, forming the entrance to the harbour. North of the roadstead are three islands (Bangao); south 3 cables' lengths from the centre (Wangchi) are the Bangao Rocks, which always show. There is deep water close to them, except to the westward, where the water shoals to  $2\frac{1}{4}$  fathoms; to avoid which do not bring the higher fort to the southward of west. Cliff Island or Seao-Seao lies nearly in the centre of the roadstead; anchorage will be found off the N.W. end of it in 4 fathoms, but with a strong wind a considerable swell rolls in. A reef of rocks extends westerly from Cliff Island, the channel between which and the islands off the main carries 3 fathoms water. South of Cliff Island is an islet with foul ground between. Seven cables' lengths E. b. S. from Cliff Island

*Channel inside Montague Island.* is a flat rock, and between them a sunken rock; the channel to the southward of Montague Island is to the eastward of Cliff Island; and will be found very narrow. Care must be taken to avoid another sunken rock lying S.S.E.  $\frac{3}{4}$  E. 4 cables' lengths from Cliff Island. Montague Island is shoal except on its S.W. part.

*Sheipoo Harbour.* 256. From the roadstead into Sheipoo Harbour there are three very narrow entrances with rapid tides; two of these entrances are formed by Tungmung (the island on which the forts are situated); \* the third and best of the three is  $1\frac{1}{4}$  miles

\* In the centre of the middle entrance is the rock on which H. M. S. Sphinx struck; it lies in the narrowest part of mid-channel, between Tung-

to the southward of Tungmung. Near its mouth is a small flat islet with a reef extending easterly. Vessels pass to the north-eastward of this islet. The town derives its importance principally as a convenient stopping place for the coasting trade; it stands on the main, forming the northern boundary of the harbour; the walls are in a dilapidated state, nor are the houses or shops good. At high water the harbour has the appearance of a splendid basin, but at low tide the mud dries off shore a long distance, giving it the appearance of a river. At the western end of the harbour is an entrance into Sanmoon Bay, and another to the southward which leads into the bay west of Leaming Island.

257. To the north of Montague Island the main is fronted by several islets, none of which are large enough to afford shelter, and the water, generally speaking, is under 3 fathoms.

258. A half-tide rock bears N.E. b. N. 6 miles from the east *Half Tide Rock.* point of Montague Island; when on it the Bear (an islet on the main with a sharp peak at its western end) bears N.W.  $\frac{1}{2}$  N. 11 miles. Should high tides and smooth water prevent its being seen, the east point of Montague Island, kept to the westward of S.W., will lead a vessel to the eastward. Patahecock Island, the southeasternmost of the Kweshan group, bears from the east point of Montague Island N.E. b. N.  $13\frac{1}{2}$  miles.

259. The Kwesan or Kweshan Islands are 11 in number *Kweshan Islands.* (besides several rocks). The largest is 3 miles long, and deeply indented, its greatest width is  $1\frac{1}{4}$  miles; in some places, however, not more than 1 or  $1\frac{1}{4}$  cables' length across. It rises near its western end into a sharp peak 490 feet high; its coast line is steep, high cliffs, and with the exception of six small sandy bays, is steep-to on all but its western side. The other islands, which are much smaller, are all thickly populated, the inhabitants subsisting principally on fish; they

mun and Sin Islands, the least water 10 feet, with very irregular soundings round it, the deepest water being towards Sin Island; it appears very small, and is probably quite smooth. This passage is not recommended for large ships, and if used, they should keep well over on the southern shore.

The northern entrance between Tungman and the main, although tortuous and narrow, is safe; there is also less Chowchow water than in the middle entrance.

The southern entrance, recommended as the best, is long and narrow; the Chinese Junks never use it; they report rocks in the centre.—*Remark Book, H. M. S. Sphinx, G. L. Carr, Master, 1853.*

*Patahecock.* have pigs, goats, a few fowls, and sweet potatoes. The south-easternmost island (Patahecock) is remarkable from its flat and table-like appearance; the summit, 450 feet above the sea, is in  $29^{\circ} 22' N.$ , and  $122^{\circ} 13' 7'' E.$  The north-eastern islet of the group is a narrow cliff uninhabited: to the westward are four small islets inhabited and cultivated; and north of them 3 cables' lengths is a flat precipitous rock, the coloured appearance of which (it being composed of red porphyry) renders it remarkable. The face of the islands is free from danger. The north-western island is the second in size, and attains an elevation of 400 feet; the largest island lies south of it; between the two is a mud bank gradually shoaling towards the larger island. By keeping the west extreme of N.W. Island to the eastward of N.N.E., not less than 3 fathoms will be found with good holding ground, and not much swell. South of the large island  $1\frac{1}{2}$  cables' lengths is another island, which is also high, with steep cliffs; off its western point is a half-tide rock, and a reef runs off from its south end.

*Holderness Rock.* 260. The Holderness rock, with one fathom over it, breaks occasionally: it lies W.  $\frac{1}{4}$  N., 1 mile from the highest part of this island. From it the highest part of N.W. island bears N.N.E.  $\frac{1}{4}$  E., a small peaked islet to the S.E., S.E.  $\frac{2}{3}$  E., and Patahecock table E.S.E., the reef of rocks lying off the south end of the nearest island being in one with it.

*Reef.* Another sunken rock with only three quarters of a fathom on it lies S. b. W.  $\frac{3}{4}$  W., three quarters of a mile from the summit of the same island; when upon it the east end of the large Kweshan is in one with the east end of the nearest island, bearing N.E.  $\frac{1}{2}$  E., and from it Patahecock table bears E.S.E.  $\frac{1}{4}$  E.

*High Water.* The time of high water in the neighbourhood of the Kweshan Islands is 2h. 30m. before the moon's transit, and the rise and fall 14 feet. The change in the direction of the stream does not take place until two hours subsequent to the change in the depth of water; the flood tide comes from the southward.

Between the Kweshan group and the Bear, the depths vary from 6 to  $3\frac{1}{2}$  fathoms, gradually shoaling towards the latter.

## CHAPTER IV.

## THE CHUSAN ARCHIPELAGO AND YANG-TSE-KIANG RIVER.

261. From the N.E. end of the Kweshans, Buffalos Nose *Southern Entrances to the Chusan Archipelago.* bears N.W.  $\frac{3}{4}$  W. 16 miles; the Mouse, a rock nearly level with the water's edge, N.N.W. 6 miles; the Whelps, a group of four small islets, W.N.W.  $\frac{3}{4}$  W. 10 miles, and Starboard Jack (a low flat reef with two rocks off its eastern end) N.W.  $\frac{1}{4}$  W. 10 miles.

The Chusan Archipelago may be entered from the southward by the Buffalos Nose, Beak Head, the S.E. or Vernon, and the Sarah Galley Channels, among which the Beak Head may be considered the best to enter, and the S.E. to go to sea by. Directions will be given for Buffalos Nose, and then for the eastward.

262. The distance between Starboard Jack and the Corkers *Buffalo's Nose.* (a number of reefs lying between Buffalos Nose and the Whelps) is  $2\frac{3}{4}$  miles, with a depth of from 6 to 5 fathoms. The outer rocks (eastern) of the Corkers is occasionally covered, and bears from the end of Buffalos Nose S.S.E.  $\frac{3}{4}$  E. There are two islets a cable's length west of it, which, should the rock be covered, will point out its position. Buffalos Nose is  $1\frac{1}{4}$  miles from north to south and three quarters of a mile from E. to W.; its eastern shore is rocky; the western side has several deep indentations, one of which nearly separates the island into two parts. There are three peaks on the island, the centre of which, 500 feet above the sea, is the highest. Near its northern end the island is perforated, from whence, it is presumed, its name; there is an islet off its N.W. end. The harbour is formed between the island and the Ploughmen, and is secure. During the northerly monsoon, however, the wind blows directly through, and occasional violent squalls are experienced. Fresh provisions and water may be obtained, *Fresh water.* but the supply of the latter cannot be depended upon. The largest island of the Ploughmen (which are 3 in number) lies

W.N.W., nearly a mile from Buffalos Nose, the depths varying from 5 to 18 fathoms. It is an even flat-topped island with a reef off its N.E. end. There is also a detached reef N.W. b. N. 4 cables' lengths from the same point. The other two islands, which are narrow and small, lie to the N.W. of the large one. Junks usually pass inside the Ploughmen and Buffalos Nose, and to the westward of the Corkers; there are, however, many reefs, and vessels will do better to keep to the eastward, avoiding Buffalos Nose entirely; pass between Starboard Jack and the Tinker, keeping on the Luhwang side of the channel.

*Nimrod Sound.* Five miles to the W.N.W. of Buffalos Nose is Nimrod Sound, the general direction of which is E.N.E. and W.S.W. On the southern entrance are the Hunter Isles, six in number, 3 miles from which on the edge of the mud to the northward is Castle Rock, with from 3 to 6 fathoms water between. The mud extends from Castle Rock (which should not be approached within 2 cables' lengths) 5 miles to Barren Island (which is low). Between Barren Island and the south shore (Nimrod Point) the distance is  $2\frac{1}{2}$  miles. Between Nimrod Point and the Hunter Islands are First Cone Point with an islet off it, to the westward of which lie Cone Rocks and Druid Island, with a half-tide rock 1 cable's length to the N.W. Nimrod Point is high, and has several sunken rocks lying 3 cables' lengths off it. Four miles above Nimrod Point is Middle Island; due south from it is the entrance to Medusa Creek, in which there are from 4 to 6 fathoms. Above Medusa Creek, Nimrod Sound contracts to 1 mile, and off the point on the north side are some dangerous rocks which show at half tide. Beyond the Creek the Sound runs up 13 miles, separated into two branches by the Treble Islands. To the N.W. of these on the north shore is the village of Tungju, from whence there is a paved footpath communicating with the Fungwha branch of the Ningpo River, the distance from hence to Ningpo being 20 miles in a direct line. On the south side beyond the Treble Isles, (and 3 miles S.W. of them) is also a paved footpath leading to Sanmoon Bay.

*Tinker.*

263. The Tinker lies N. b. E.  $\frac{3}{4}$  E.  $2\frac{3}{4}$  miles from Starboard Jack (it is a cliff steep rock 80 feet above water). There are

6½ fathoms water between the two, but there is a sunken rock off the Tinker 2 cables' lengths, bearing S.E. b. E. from it. The islands of Mesan and Lanjett lie three quarters of a mile to the N. of the Tinker ; these are four large and several smaller islets and rocks, the largest of which (Mesan), not quite a mile in *Mesan and Lanjett.* circumference, is about 400 feet high : its barren summit forming one of the most remarkable features in the Buffalos Nose passage. In the channel between it and the Tinker there are from 7 to 8 fathoms. Sunken rocks extend a short distance from both shores. The south face of Luhwang has two *Luhwang Island.* deep indentations with sandy bays; a reef extends from the point opposite Mesan and Lanjett 3 cables' lengths, and the reefs from the north end of Mesan extend 5 cables' lengths, narrowing the channel between Mesan and Luhwang to less than a mile. The coast line of the latter immediately to the westward of Reef Point trends to the northward, forming a deep bay with three islets in it, extending to Duffields Passage. South 1 mile from the easternmost island in this bay there is a mud bank, having 3½ fathoms on it, to avoid which the vessel should keep the island on board, giving a berth to a rock half a cable's length from its south end. Between this island and Duffields Reef, which lies off the *Duffields Reef.* eastern entrance to Duffields Channel, and consists of three rocks above water with a sunken rock between them and Luhwang, there are from 9 to 5 fathoms good holding ground.

264. Duffields (or the passage between Luhwang and Foto *Duffields Islands.* *Pass.*) is the nearest towards Ketow Point. The channel is 1·2 miles broad at the entrance (where the water suddenly deepens from 5½ to 40 fathoms), and 5 cables' lengths in the narrowest part which is near the centre; on the Foto Island shore are several islets; among them the water shoals to 4½ and 5 fathoms, and a ship may stop a tide if necessary. Off the fourth point on the Luhwang side is a reef 1 cable's length from the shore ; otherwise the Luhwang side is very steep to (35 fathoms within 1 cable's length of the mud). Between the Notches (2 small islets in the centre of the passage) and Foto Island is a half-tide rock ; unless it shows, vessels should not tack inside the Notches so as to pass to the westward of them. Off the islet at the north end of the

*Hebe Rock.* channel (Hebe Island) H.M.S. the Young Hebe discovered a rock with 16 feet over it at low water; it lies 2 cables' lengths to the eastward of the Island; when on it, the north ends of Hebe and Chloe Islets are in one bearing N.W. b. W. and the east point of Foto (Point Barrow) is in one with the western end of Tree-a-top Island, seen over the mud connecting St. Andrews Island with Foto Island. On the Luhwang side beyond Hebe Island is the Bird Rock, 1 cable's length from the shore. This rock used to have a stone pillar on it, which was either thrown down or removed in 1846. Two cables' lengths from the Bird Rock are two islets.

*Bird Rock.*

*General description of Luhwang Island.*

265. Luhwang Island is 26 miles in circumference,  $9\frac{1}{2}$  miles long and 6 miles across at its broadest part, which is the western end; near the centre it is little more than 2 miles across, and not much elevated above the sea. The south-eastern body of the island rises to the height of 865 feet, being a conical bare hill; on the isthmus is an isolated peak 718 feet high, and on the north-western side are five high peaks, one of which is 920 feet above the mean tide level. The Island is well cultivated, and maintains a large population. Beyond the Bird Rock the coast-line turns suddenly to the N.E. Cape Luhwang, the north end of the Island, is high and bold.

*Foto Island.*

*Tree-a-top Island.*

266. Foto Island is not quite 3 miles long and 1 broad; the southern end, forming a narrow point, is connected at low water with St. Andrews Island (a bold steep head), the west entrance to Duffields Pass. Tree-a-Top Island lies  $3\frac{1}{2}$  cables' lengths south of it, with a deep water channel between them. This Island is 180 feet high, and about 4 cables' lengths in circumference; there is a pile of stones on its summit, but no tree (the old name given it in the chart by Thornton in 1703 is still adhered to). A spit runs off from the north end of Foto, to the northward of which are three islets, with a rock 1 cable's length to the N.W. of the northernmost islet.

*Goughs Pass.*

267. Goughs Pass, formed by Foto Island to the east and the central isles on the west, is preferable either to Duffields or Roberts Pass. In this channel both shores are steep-to, but off the southern islet of the central group is a shoal

extending southerly, of which the lead if hove quick will give warning. The passage is  $1\frac{1}{2}$  miles through and 5 cables' lengths wide.

268. Roberts "Best Pass" lies to the west of the central islands, and between them and the mud off Meishan, which dries one mile from the embankment. From the lead giving no warning the boundary of the channel on the Meishan side is not known except at low water; the depths vary from 6 to 40 fathoms; the channel is nearly 2 miles through and 5 cables' lengths wide. The course after getting through these two passages for Ketow Point will be N.E.  $\frac{1}{2}$  N.  $9\frac{1}{2}$  miles. On the north side of Meishan Island are 2 islets (Damson Islets) from the northernmost of which (Cliff Isle) a shoal carrying  $2\frac{1}{2}$  fathoms extends northerly 4 cables' lengths from the shore. By keeping the Central islands open until the vessel is half a mile past the Cliff Islet the shoal will be avoided.

269. Between Meishan Island and the Ketow shore there is a narrow channel  $2\frac{1}{4}$  cables' lengths wide carrying 5 and 6 fathoms through except at the southern entrance, where there is a bar with only 10 feet over it. On the mainland near the centre of this passage is a custom-house, and the entrance to two canals which communicate with the large villages in the neighbourhood. Two miles to the northward of Meishan Island is the walled town of Kwokeu, where the mate of the Lyra merchant ship was kidnapped, and attempts made to interrupt the surveying operations in 1840.

270. The south-western of the Central Islands is a small *Central Islands.* islet connected with the next (which is the largest of the group) by a reef and spit, and half a cable's length to the north of the northern islet is a reef.

271. Meishan Island appears formerly to have been eight *Meishan Island.* islands, now however united by substantial stone walls, one of which is  $1\frac{1}{2}$  miles in extent. The mud dries  $1\frac{1}{2}$  miles from the south end and  $2\frac{1}{2}$  cables' lengths from the north end; on its east side the bank is steep-to. In these passages the first of the flood often comes from the northward, and runs sometimes for three hours before it takes the direction of the ocean tide.

272. Anchorage will be found anywhere along the Ketow *Anchorage on* shore, until abreast of Singlosan Island, where the water *the Ketow* *shore.* deepens; as there is no anchorage, unless in very deep

water, until Elephant Island is reached, vessels are recommended not to proceed without they have wind or tide sufficient to carry them in.

*Beak Head  
Channel.*

*Beak Head.*

*Harbour Rouse.*

*Vernon Island.*

*Conical Hill  
Island.*

*Conway Island.*

273. The next passage to Buffalos Nose is Beak Head Channel, called by the Chinese Taowsowmun ; the entrance bears N.  $\frac{3}{4}$  E., 18 miles from the N.E. end of the Kweshan group. Off the east end of the Beak Island, Beak Head, (which forms the west side of the passage, and is remarkable for two hummocks near its west end) are three islets ; to the south-westward of the Beak Head are several islets and a rock, which together with Luhwang Island form Harbour Rouse, the entrance to which is between Front Island (the southernmost) and a castellated rock ; the depth inside varies from  $5\frac{1}{2}$  to  $2\frac{1}{2}$  fathoms, and it will be found a convenient stopping place for a vessel that has missed her tide through the Beak Head Channel. The Beak Head Island is 5 miles long and in some parts very narrow. The channel between Luhwang Island and it has  $3\frac{1}{2}$  fathoms ; but it is unfit for navigation. On the N.E. side of Beak Island are two reefs, close in shore, 3 cables' lengths and half a cable's length respectively. Off the north end of Beak Island are Gull, Shag, and Puffin Islets, with a reef above water between the two former. A reef extends 3

cables' lengths off the N.W. end of Puffin Island. Vernon Island (or Heache), which forms the eastern boundary of the Beak Head Channel, is 2.8 miles distant, carrying a depth of 18 and 20 fathoms at the entrance. Near the west end of the Beak Island, the channel narrows to 5 cables' lengths ; a reef of rocks, the northernmost of which is always above water,

bounds the channel on the Beak Island side, and Conical Hill Island, with two small islets on its south side, confines it to the east. This island is situated mid-way between Beak and Vernon Islands ; between it and the latter are two islets, the reefs off which render the channel on that side more intricate.

Having steered N.W. b. W.  $\frac{1}{4}$  W.,  $8\frac{1}{2}$  miles from the entrance, the vessel will pass Conway Island to the northward, in the neighbourhood of which good anchorage will be found in 9 and 10 fathoms. From the south point of Conway Island a N.W. course will clear the channel ; care must be taken in light winds to give Pai Rock, the last islet on the north side of the channel, a wide berth. To the northward of

Conway Island is an archipelago of islets and rocks, through which there is a passage into the Vernon Channel ; but owing to the rapidity of the tides, it should not be attempted without local experience. On the Luhwang side is a reef and an islet, with a small pinnacle on it : the reef, which is usually uncovered, bears S.E.  $\frac{3}{4}$  S. from Cape Luhwang, and W.  $\frac{1}{4}$  N.  $2\frac{1}{4}$  miles from the peak of Conway Island. The mud dries in the bight, 7 cables' lengths from the shore ; by keeping the cape to the west of N.W. b. N., it will be avoided.

274. The S.E. passage, or Vernon Channel, called Heachemun *S.E. Passage*, by the Chinese, lies 5 miles further to the northward. It is formed by Vernon Island on the south, and Taouhwa on the north ; the east end of the former is rugged, with large boulders of granite ; there is a cove at this end of the island, which runs back three quarters of a mile and affords shelter for boats. Vernon Island is nearly six miles long. On the N.E. side is a bay, (with two islets and a reef in it,) in which vessels may anchor in 4 and 5 fathoms, and procure water from Taouhwa Island opposite, on which there are several cascades ; the channel here is  $1\frac{1}{2}$  miles wide. Six miles from the entrance it narrows to  $3\frac{1}{2}$  cables' lengths, the north (or Taouhwa) side being bounded by two small islets and some rocks, and an island with a sharp peak (John Peak) to the southward, off the N.E. end of which there is a rock half a cable's length from the shore, uncovered at last quarter ebb. There is a passage between John Peak and Vernon Islands, and good anchorage will be found on the south side of the former. The passage is 8 miles through, and from its N.W. entrance Roundabout Island bears N.W.  $\frac{1}{3}$  N. 5 miles.

The Taouhwa shore is bold and precipitous ; the highest part *Towhashan*, is 1680 feet above the sea. Near the western end the land becomes very low, rising, however, again, and surmounted by a peculiar perpendicular crag (Millers Thumb) which will be *Millers Thumb*. recognised throughout all this part of the archipelago. In some parts of this channel there are 60 fathoms water, and the tides are very rapid ; it will, however, be found a convenient passage to sea from Chusan during the northern monsoon, the distance from Elephant Island to the open sea being only 17 miles. It should not, however, be attempted with light winds, as vessels are liable to be becalmed and experience flaws under the high land of Taouhwa.

*Sarah Galley Channel.* 275. Sarah Galley Channel is by no means so good as those already mentioned ; the entrance to it bears N. b. E. 21 miles

*Jansen Rock or Laoush.* from the Kweshan Islands. Near to it is the Jansen Rock (or Laoush), a steep cliff islet, with rocks  $1\frac{1}{2}$  cable lengths from its south end. There is also a half-tide rock, bearing W.N.W.  $\frac{2}{3}$  W., distant 1.3 mile from the Laoush Rock : when upon it the highest part of Oswamong, or Ousha Island, bears N.N.E.  $\frac{1}{4}$  E. 1.8 mile. Vessels entering leave Laoush Rock and Ousha Island to the eastward, passing between the latter and two patches of rocks, which are almost covered at high water. These rocks lie N.N.E. and S.S.W. of one another, and are 2 cables' lengths apart. The distance between them and Ousha Island is 5 cables' lengths ; after passing which the course is north  $2\frac{1}{4}$  miles, leaving two small islets (Teen and Yung, on the face of Tangfow) and a reef between them to the westward, and Hut Island (so called from a house on its summit) to the eastward. The channel here is 7 cables' lengths wide. From hence the course is N.W. b. N. 1.7 miles, between an island with two hummocks to the southward, and Druids Island to the north.

*Druids Island.* On the north side the water shoals suddenly. Flat Island, or Liwan (at the west entrance to the channel), must not be brought to the westward of W.N.W.  $\frac{2}{3}$  W. after passing Hut Islet.

*Flat Island or Liwan.* Flat Island, or Liwan, has two reefs off its south end. Anchorage will be found in its vicinity. From it to Round-about Island the course is W. b. S., and the distance 7.7 miles.

*Description of the Islands.* The coast line of Ousha is steep cliffs. Off the S.W. end of the island is a ledge of rocks ; the southern end of the island is the highest, and rises in a round peak. Off the N.E. point of Taouhwa Island is Peak Island, the channel between which owing to reefs and strong tides, is not navigable ; neither is there a fit passage between Peak Island and Tangfow. Vessels may pass between the two patches of rock south of Ousha and Peak Island ; but there are some rocks off the north end of the latter, which reduces the channel to 7 cables' lengths wide.

*Chookea Island, or Choos Peak.* 276. To the north of Ousha Island, and rising much higher than it, is the large island of Chookea, or Choos Peak. The channel between them is 2 cables' lengths wide, but, from the violent tides in it, should not be used without a commanding breeze. Chookea Island is about 7 miles from north to south. On the western side are many deep indentations, some of which are

enclosed from the sea by stone walls. There are four remarkable peaks on it, overlooking Ousha Island ; and near the centre of the island is a smooth-topped cone, 1,164 feet above the sea, one of the most prominent objects in making this part of the archipelago. The east side of the island is also much indented. The southern bay (Wolf Bay) affords anchorage in *Watering Bay*. the N.E. monsoon, and was resorted to in 1842 by the men-of-war (from Chusan) for water. On the north side of the bay is a black islet, with rocks extending southerly and easterly from it. Fronting the bay, and  $1\frac{1}{2}$  miles from the shore, is a peaked rock (Pillar Rock), off which, 2 cables' lengths to the N.E., are two reefs, showing at half tide. In the small bay north of the watering bay is a reef visible at low water ; it will be avoided by tacking outside the headlands. Nob Rock lies 3 cables' lengths from the north point of the bay, and is always above water. To the eastward of Chookea, at the distance of 5 and 8 miles, are two islets (Pihling and Tongting) with detached rocks around them. The Pelican Rock lies 2.5 *Pelican Rock*. miles from Chookea shore ; it shows at low-water spring tides, the disturbed water over it will generally indicate its position. The marks for it are, the islet off the north end of Chookea (Yangsi), in one with the summit of Pootoo Island, bearing N.N.W.  $\frac{1}{2}$  W. ; the east end of the Laoush Rock, in one with the summit of Vernon Island, S.W.  $\frac{1}{4}$  W. ; the nearer islet of the two to the eastward, E.  $\frac{3}{4}$  N. ; Chookea Peak, N.W. b. W.  $\frac{3}{4}$  W. Between Chookea and Druid islands the mud dries nearly all the way, leaving a small boat channel.

277. When in the vicinity of Liwan Island, at the western entrance to the Sarah Galley channel, the east end of Chusan will be seen, having on it a small open temple, composed of large slabs of stone. Between Liwan and Chusan Islands is the island of Louka, the south shore of which is not steep-to ; and this is the case with the whole of the islets on the south side of Chusan, between this and abreast of Roundabout Island, after which they become steep-to. By not standing to the northward after the vessel has passed the smaller islets south of Takan, so as to bring the rocks off Pihlou in one with Trunk Point on Elephant Island, the shoal water will be avoided.

278. Large or unhandy vessels bound to Tinghae should choose the Tower Hill channel ; and, unless favoured by a

commanding breeze and neap tides, ought not to pass between Roundabout Island and Ketow Point ; a W. b. N. course for 8 miles from Roundabout Island will carry a vessel to the south end of Tower Hill Island ; should the tide fail, anchorage will be found under the islands to the east of Tygosan ; for which purpose pass to the southward of Square Stone (the eastern islet), at the distance of 3 cables' lengths, to avoid the reef which lies S.W. from it, and anchor before the channel between Little Tygosan and Chuenpi opens, as the depth of water shoals suddenly off Entrance Island (the islet to the south-westward). Having rounded Tower Hill Island, Tea Island may be steered for. The depth of water between Bell and Tower Hill Islands varies from 30 to 40 fathoms, except off the N.W. end of the latter, where there is a mud-bank with 3 fathoms over it,  $1\frac{1}{2}$  cables' lengths from the shore.

*Anchorage under Chuenpi.* *Tides.* Spring tides set at the rate of 3 and  $3\frac{1}{2}$  knots per hour, and vessels in light winds must be careful that they are not set by the ebb tide into the archipelago between Tower Hill and Elephant Islands, or between the latter and Tea Island, where the channels are narrow, with deep water and foul ground.

*Anchorage between Bell and Tea Islands.* 279. Between Bell and Tea Islands good anchorage in 10 and 12 fathoms will be found. Ships intending to remain here should not open the channel between Bell Island and Chusan, as the tides are stronger and the ground loose ; in passing from hence to the inner harbour at Chusan, care must be taken to avoid a sunken rock, the Nab, with 14 feet over it at low water, and which lies due south of a small hillock in the valley near the coast line of Chusan. It is  $2\frac{1}{4}$  cables lengths from the shore, and the marks for it are the west end of Tea Island just open of the east side of Bell Rock, S.  $\frac{1}{4}$  W., and Guard House Island, south point nearly in one with the summit of Trumball Island. Seven hundred and fifty yards E.N.E.  $\frac{2}{3}$  E. from Aptanshan Island is a patch, with 3 fathoms over it.

*Sunkens.* 280. There is anchorage on the Chusan shore, between the Nab rock and Guard House Island, which is convenient for watering ; the tides, however, are irregular, and off the entrance to the watering creek is a mud bank, having 3 fathoms on it at low water. With light winds, vessels should avoid the strength of the ebb when passing through

the channel between Tea and Guard House Islands, which otherwise is liable to set them through the southern or Melville passage ; a ledge of rocks covered at high water extends from the N.W. point of Tea Island, 1 cable's length from high water mark. Having passed Guard House Island, the mark for avoiding the southern edge of the Middle Ground *Middle Ground in Chusan Harbour* is the hill on the south end of Tea *in Chusan Harbour.* Island, in one with Tower Hill.

281. The Melville or South Passage lies between Elephant *Melville or South Passage.* and Deer Islands ; the course from Roundabout Island to the entrance is N.W.  $\frac{1}{2}$  N.  $4\frac{1}{2}$  miles. Elephant Island is remarkable from a crag near the summit. To the N.E. of it is a cone-topped island (Pating), which renders the entrance easy to identify. There is anchorage between Elephant and Tung Islet (the islet south of Deer Island), in 16 and 18 fathoms ; but the holding ground is not good. Beyond Round Islet, which lies to the N.E. of Elephant Island, the water deepens to 28 and 34 fathoms, to the southern rock (Melville Rock), which *Tinghae Harbour.* has 10 feet over it at low water spring tides. The marks for it are the Cap rock, in one with the Saddle on Kintang Island, bearing W.N.W.  $\frac{2}{3}$  W., and the Joss house on the hill near the suburbs of Tinghae showing between Trumball and Sarah Islands ; it lies S.E. b. E.  $\frac{2}{3}$  E. 2 cables' lengths from the Black Rock, and E.N.E.  $\frac{2}{3}$  E.  $1\frac{1}{2}$  cables' lengths from the rocky ledge extending towards it from Ledge Island, the island north of Pating Islands, and which covers at half tide. The North *Sunken Rocks in Melville Channel.* (Dundas) rock is  $1\frac{3}{4}$  cables' lengths north of Melville Rock ; this patch is about 30 feet by 20, the least water on it being 9 feet ; it bears from the Black Rock N.E. b. E.  $\frac{2}{3}$  E.,  $2\frac{1}{8}$  cables' lengths, when on it. A bushy tree on the eastern slope of Takeu Island is in one with the square beacon on East Hill (Chusan), and the north end of the Black Rock is in one with the south part of Cap Rock. The east end of Round Island, in one with the end of the Elephants Trunk bearing S.  $\frac{1}{2}$  W., will carry a vessel through rather to the westward of mid-channel ; the tides rushing through five different channels into this render a ship unmanageable even with a good breeze at springs, and in taking it at neaps with light winds a boat will be found useful ahead. Having passed Takeu Island (a low island with two hills on it, the

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isthmus connecting them being but little above high water), steer for Macclesfield Island, which may be rounded close in order to avoid the Middle Ground, the southern end of which, in 3 fathoms, is  $2\frac{3}{4}$  cables' lengths distant, and the marks for it are the South Hill on Tea Island, in one with Tower Hill Island. On the northern face of Macclesfield Island there is a rock which is covered at high water, and is barely 1 cable's length from the shore.

*Passage between Takeu and Deer Islands.*

282. The inner harbour may also be entered from the eastward by passing between Deer and Takeu Islands, which are  $1\frac{1}{2}$  cables' lengths apart ; by keeping the western hillock of Takeu Island open to the left of the summit of Tawoo Island, vessels will avoid the Melville and Dundas Rocks, but must bear in mind that neither shore is steep-to. The beacon rock to the N.E. of Takeu Island may be passed close on either side ; and the Chusan shore may be steered for, keeping a full cable's length to the east of Grave Island until the harbour beacon opens north of it, when it may be steered for, passing between it and the Chusan shore, keeping the latter on board, until Takeu Island is shut in by Tawoo Island. This passage, although narrower, is superior to the south, as in it vessels have the tide in their favour all the way ; the principal objection is the liability to flaws of wind under Deer Island ; and the main point to be guarded against is the flood from the eastern channels carrying them so far to the west as not to fetch far enough to the east of Grave Island. There is good anchorage between Tawoo and Takeu Islands, in 8 and 10 fathoms; a spit extends from the S.E. end of the latter, the 3 fathoms line being 3 cables' lengths from the shore ; the south end of Macclesfield Island, open of the summit of Tea Island, will lead to the southward of it.

*General description of Chusan.*

283. Chusan, so called from its supposed resemblance to a boat, is 51.5 miles in circumference, its extreme length being 20.8 miles, which is in a N.W. and S.E. direction; the greatest breadth in any part being 10.5 miles. From the beach on the shore at Tinghae to the northern shore the distance is 7 miles; towards the eastern end of the island it becomes narrower, never, however, being under 6.1 miles. Besides Tinghae there are three other commercial ports on the island, viz., Chinkeamun, Chinkeang or Singkong, and Shaavu.

284. Chinkeamun is situated at the S.E. end of the island, *Chinkcamun*, and carries on a considerable fishery to the eastward of Pootoo Island; about 35 junks, each carrying from 30 to 35 men, and 250 smaller boats, averaging 5 men each, are employed for this purpose; the proceeds are carried principally to Ningpo, the fish being preserved in ice during the summer. The harbour is formed by the island of Lokea, and is  $1\frac{1}{2}$  cables' lengths wide with 4 and 5 fathoms abreast of the town. The S.W. entrance lies between Lokea and Maoutze Islands, and has not more than  $2\frac{1}{4}$  fathoms at low water, the mud extending westerly  $4\frac{1}{2}$  cables' from the former, and a rock which lays S.S.E. 1 cable's length from the east end of Maoutze. H.M.S. *Pylades* lay between the latter and Chusan, in 5 fathoms, the width of the channel being  $2\frac{1}{4}$  cables' lengths; the high land (600 feet) on the Chusan side occasioned the squalls at times to be very violent.

285. H.M.S. *Conway* lay to the eastward of Lokea Island, with the small Flat island, Liwan (with two rocks off it), at the west end of the Sarah Galley Passage, bearing west 0°7 mile in 5 fathoms at low water.

The distance from Chinkeamun to Tinghae is  $11\frac{1}{2}$  miles. The channel along the Chusan shore has deep water, but in some places is so very narrow as to be practicable only for small steam vessels or boats.

286. The principal islands on this face of Chusan are (reckoning from the eastward): Lokea, Maoutze, Takan, Yingan, and Aoshan. Between Takan and Maoutze there are not more than 6 feet at low water, and between the two latter there is the same; between Aoshan and Deer Island there is a deep water channel, but it is confined by mud banks and obstructed by reefs.

287. The channel between the east end of Chusan and Pootoo Island has only  $1\frac{1}{2}$  fathoms at low water, and on the bank are some hard casts; therefore vessels drawing over 12 feet should not attempt it, but use the Sarah Galley Passage. The channel off the S.E. end of Chusan is 2 cables' lengths wide, and will be seen (bearing about N.E. b. N.) after passing Liwan Island. in the centre of it is a reef with a stone pillar on it. In working up between Lokea and Kinho Island, the shoal water extends *Channel between Lokea and Kinho Islands.*

*Channel between Pootoo Island and Chusan.*

the latter; the pillar or beacon (mentioned above) in one with a cliff islet beyond it, is a good mid-channel mark. After passing the beacon to the eastward bring Cliff Islet in one with a building on the low peninsula (Wang Head) forming the N.E. point of Chusan; this will lead over the flat in the deepest water, and when the south end of Pootoo Island bears east it may be steered for. Pootoo Island is 3·4 miles from the S.E. point of Chusan, and 1·6 miles from the east point; it is  $3\frac{1}{2}$  miles long, and in one place only 0·6 miles across. A narrow projecting point extends from the eastern side of the island forming a deep, sandy bay, in which there is 3 fathoms; off this point is an islet with a sunken rock on its east side; a stream runs into the bay which might be used by vessels in want of water, should the well at the south side of the island prove dry; this stream is situated in a small sandy bay to the west of a hill with three chimneys on it, and may be known by a small joss house. The landing place of the pilgrims is at a causeway, east of Well Bay. The anchorage off this side of the island is in 12 and 14 fathoms, and several vessels have had a difficulty in purchasing their anchors.\*

The temples on Pootoo are very numerous, but the two largest (which are on the east side of the island) are falling into decay. The western face of Pootoo is shoal to, the  $2\frac{1}{2}$  fathoms line being 3 cables' lengths from the shore. To the N.E. is Isthmus Island, the channel between the two being three quarters of a mile wide, with deep water. Off the S.E. point of it 4 cables' lengths is a half-tide rock; when on it the East and S.E. ends of Pootoo Island are in one, bearing S.W.  $\frac{2}{3}$  S., and the south summit of Isthmus Island bears W.  $\frac{1}{2}$  N. To the eastward of the south point of Pootoo Island, and off the north end of Chookea Island are four islands, Loka, Pihsha, Lakeah, and Lakeati. There is a passage between them and Chookea Island, and a good channel between them and Pootoo Island.

*Passage between Bell Island and Chusan.* 288. The passage between Bell Island and Chusan is not recommended, owing to the strong tides. Near the centre of the channel is a half tide rock, Kwafoo, with a stone beacon on it, and to the S.W. of the beacon is a patch with only 9

\* This anchorage is very much exposed, and by no means desirable in bad weather.—*Remark Book, H.M.S. Mariner, 1849, Charles Mathison, Commander.*

feet at low water. On the Chusan side are two islets, Chintan and Kwokan; the south end of Kwokan, the westernmost of the two, in one with the south end of Kiddisol, will place a vessel on the shoalest part. Neither is the north end of Bell Island steep-to, consequently should necessity call for this channel being used, the channel between the beacon and Chusan should be preferred to that between the beacon and Bell Island. Off *Kiddisol Island*. the S.W. point of Chusan  $1\frac{1}{2}$  cables' lengths is the island of Kiddisol, with a patch of 3 fathoms off its S.W. end; there is deep water in the channel, but the eddies are violent at spring tides. From hence to Chingkeang the coast line of Chusan is mud, with the exception of a small hillock at the edge of the low water line. Anchorage in 10 and 12 fathoms will be found all along the shore, but in standing in to it bear in mind that after 10 fathoms the water shoals suddenly.

Chingkeang Harbour on the west side of Chusan, is *Chingkeang Harbour*. distant  $7\frac{1}{2}$  miles in a direct line from Tinghae. It is formed by the islands, Wateo, Lin, and Latea, (that is to say Outer, Middle, and Inner Hook,) and Chusan. A white rock lies off the S.W. point of Wateo, and a mud spit extends from the island nearly to the rock. Between Wateo and Chusan the distance is 6 cables' lengths with 7 and 8 fathoms, forming a snug anchorage, much frequented by the junks as a halting place. It is defended from pirates by a fort. Opposite to Lin the channel is less than a cable's length wide, with 7 fathoms water. The town stands on the banks of a stream on the Chusan shore, which at high water is navigable for boats. Here the width of the channel is also less than a cable's length, and the depth of water 5 to 4 fathoms. Upon the islands forming the harbour and on the point near the entrance are extensive stone quarries.

289. The Steward Rock, 50 feet above the sea, lies between *Steward Rock*. Chusan and Kintang Islands. There is deep water (45 fathoms) in its vicinity, except to the eastward (2 cables' lengths), where there is a rocky bed on which the least water as yet found is 6 fathoms.

290. The distance between the Steward Rock and Kintang *Kintang Island*. Island is 2 miles. Near the southern end of the latter is a remarkable saddle hill (which with the Cap Rock forms one of the marks for the south or Melville Rock, in the Melville

Channel). Off the S.E. end of Kintang (Algerine Point) is an islet connected at low water by a mud flat, from which a ledge of rocks extends, the south end covers at high water. The east face of Kintang Island is bold to, without anchorage along it. Opposite to Chingkeang Harbour is another remarkable peak, 1,519 feet above the sea. From the anchorage off Sinkong Point the distance through the Blackwall Passage is 6 miles, and anchorage will not be found until to the northward of Blackwall Island. The channel between Kintang and Blackwall Islands is half a mile wide, and in it the eddies very strong. Vessels have been turned round in a double-reefed topsail breeze. Rondo, a small islet, lies off the S.W. end of the latter; there is deep water between them, but the Kintang Island side will be found the best to border upon. There is a long bay on the Blackwall side, from the north end of which a reef extends  $1\frac{1}{2}$  cable length westerly; to avoid it do not open the Steward Rock to the eastward of the islet just mentioned.

*Islands off the north end of Kintang Island.* 291. Off the north end of Kintang there is a group of seven islands, amongst which anchorage will be found, and an opening into Lucon or Port Taoutse, which at present (1851) is a station for the opium vessels.

There is anchorage also on the north side of Blackwall Island near Cliff Islet, but it is exposed to northerly winds. Between Blackwall and Chusan Island is Ketsu, a flat island; the channel is three cables' lengths wide, but not recommended, as the tides are very strong, and there is a sunken rock  $1\frac{1}{2}$  cable length from the N.E. point of Blackwall. Between Ketsu and Chusan Islands the channel is one cable's length wide; neither shore is steep to.

*Crack Islet.* 292. The northern islet (Crack Islet) off Broken Island bears from the west point of Blackwall Island N. b. E.  $\frac{1}{3}$  E.  $6\frac{1}{2}$  miles. There is a passage between it and Broken Island, but the 2 fathoms line extends 7 cables' lengths from the N.W. point of the latter. A mud spit runs off northwesterly 4 cables' lengths from the former. N.W.  $3\frac{1}{2}$  miles from Broken Island is a group of low islets (Dunsterville), which may be approached as convenient, the depth of water between them and Broken Islet varying from 5 to 4 fathoms. The tides are

*Dunsterville Islets.*

strong in the neighbourhood, the flood running to the west, and the ebb to the east.

Broken Island is connected at low water with Chusan by a *Broken Island*. mud bank. The entrance to Shaavu Harbour (Art. 283) lies *Shaavu Harbour*. between it and Fishers Island, or Changpih, and is 6 cables' *Fishers Island*, lengths wide. Broken Island is steep-to on its north-eastern *or Changpih*. side, but shoal water extends 5 cables' lengths westerly from Changpih Island. The harbour is formed by Changpih and Chusan Islands ; it is 2 miles long and 1.7 miles wide, with a depth varying from 5 to 9 fathoms. The coast of Chusan is lined by a mud bank, which renders landing, unless at high water, difficult, except in one place near the eastern end of the harbour, where there is a causeway. Near to the causeway are some houses, but the principal village is situated some distance up the valley. The south shore of Changpih Island is also an extensive mud bank, a considerable portion of which has been enclosed from the sea by embankment. Off the S.E. end of this island there is shoal water, the three fathoms line being 5 cables' lengths from high water mark.

293. Vessels intending to go to the eastward from Shaavu *The Keweï Harbour* may pass either between Lansew or Sheppey Island *Channel between* and Chusan, or to the northward of the former, which is the *Lansew Island and Chusan*. better channel of the two, but both are difficult for a stranger. There is a sunken rock on the Chusan shore, 2 miles to the S.E. of Changpih Island, the marks for which are the south end of Changpih Island W.  $\frac{1}{2}$  N. Cluster Islet, the large one, (an islet N.E. of Changpih) N.  $\frac{1}{2}$  W. ; the summit of Lansew or Sheppey E.N.E.  $\frac{3}{4}$  E. The Houlband Isles lie between Changpih and Lansew Islands, but nearer to the latter ; the channel is between them and two rocks on the Chusan shore off Maaou Point, and then south of Grain Islet (or Sewshan, which is 2 cables' lengths south of Lansew) ; the channel here is 2 cables' lengths wide, being formed by a low reef south of Grain Islet and Kanlan Point on the Chusan shore ; it should not be attempted during the strength of the tide. There is another channel (the Kwimun) closer to the Chusan shore ; it is, however, crooked, and there is a sunken rock near the centre.

294. To pass to the northward of Lansew, a N.E. b. E. *Channel north of Lansew*. course must be steered from the east end of Changpih island

for Kwisi Island. The S.E. side of Kwisi Island is steep-to, and the distance between it and Lansew is 1·6 mile ; the mud dries  $1\frac{1}{2}$  miles off the latter, and is steep-to, the lead giving no warning. The north end of Moun Islet (the largest islet off the north end of Lansew) is one with the N.W. point (Minster Point) of that island will clear it. Having passed Kwisi Islet a course must be steered for Kwan, which lies east of it  $1\frac{1}{4}$  miles ; the latter must be kept close on board, to avoid a rock which is covered at high water. The channel is 5 cables' lengths wide, but owing to the eddy tides and flaws off Kwan Island, is difficult to shoot. From the rock Kwisi hill bears W. b. N., and the highest part of Lansew S.S.W.  $\frac{1}{2}$  W. ; the ground between this rock and Lansew is foul. Having passed the reef, Moun Islet (mentioned above as the leading mark for avoiding the mud off Lansew) bounds the passage to the southward; a ledge of rocks extends a short distance from its N.W. point. To the east of Kwan are nine islands ; there is a reef off the southern end of the first ; a due east course will carry a vessel hence along Changtow and the N.E. chain to the open sea. Vessels wishing to anchor on the east side of Lansew Island may haul to the southward after passing the first islet east of Moun, running between it and Ganching ; a cluster of rocks to the eastward. At the east end of Lansew is a low cliff (Harty Island), which may be passed within a cable's length, and anchorage will then be found in 3 and 4 fathoms; the water shoaling gradually towards the shore. H.M.S. *Pylades* anchored here in  $5\frac{1}{2}$  fathoms, 6 cables' lengths from the end of Harty Island, bearing N.  $\frac{3}{4}$  W. and Grain Islet south of Lansew Island, S.W. b. W. In the N.W. monsoon a better anchorage will be found in Peaked Rock Bay, near the east end of Keushan. The island of Lansew appears formerly to have been two, the intervening space having been gained from the sea by embanking, it is now called by the Chinese Lanshan and Sawshan ; it is 3·5 miles long and 2·6 broad ; to the eastward of it, at the distance of 2 miles and 5 miles are two cliff islets, called Double Rocks and Cliffs. South of the western Cliffs, 2 cables' lengths, is a ledge of rocks nearly awash at high water, and in its neighbourhood the ground is foul. There are rocks, also, which show at low water  $1\frac{1}{2}$  cables' lengths from the N.E. point of the same islet.

295. The coast line of Chusan to the east of Lansew trends *N.E. face of Chusan.* to the S.E. ; at the distance of 3 miles is Thornton Islet, with a narrow passage between it and the main island and a deep bay (which is shoal) ; to the westward an islet and rocks lie off the N.E. face of Thornton Island. Three miles and a half further to the S.E. is a larger island, Tsae, with a remarkable *Tsae Island.* fall in the hills near its centre ; a small islet lies one mile west from its north end. The Chusan shore hereabouts is shoal-to, there being only  $1\frac{1}{4}$  fathoms between this islet and the coast. East of Tsae Island are three islets, at the distance of  $\frac{1}{2}$ ,  $1\frac{1}{2}$ , and  $3\frac{1}{4}$  miles ; the nearest, Meihyun, is the largest of the three, and has a patch of rocks 4 cables' lengths to the N.N.W. of it. N.W., also, 4 cables' lengths from the centre islet, Meihting, is a rock. The outer islet, Jow Rock, is a narrow cliff with a pinnacle rock between it and Meihting ; there is a rock 1 cable's length to the northward of Jow Rock.

296. From Fall or Tsae Island to the east end of Chusan, Whang Head, the distance is  $4\frac{1}{2}$  miles ; half way between the two *Whang Head.* is a low island, Tachen, the depth of water in the vicinity of which is 3 fathoms ; there is a reef three quarters of a mile to the S.E. of it, and  $2\frac{1}{2}$  cables' lengths from the Chusan shore ; the bearings from it are N.E. point of Tachen in one with N.E. point of Tsae Island, N.N.W., the North end of the Pootoo group E. b. N. The N.W. and West face of Pootoo Island (see articles 287 and 312) is shoal to, leaving, however, a channel between it and Whang Head nearly a mile wide, carrying 4 fathoms water, in working through which, Whang Head must not be brought to the eastward of north, as the Chusan shore south *Pootoo Island.* of it is shoal. Off the north end of Pootoo Island is a small *Articles 287 and 312.* islet with rocks north of it ; vessels may pass between the Rocks and the Islet and between Isthmus and Pootoo Islands. To the N.E. of Isthmus Island are N.E. Islet (a conical rock) and the Ninepin Rocks, and east of Pootoo Island, 6 and  $7\frac{1}{2}$  miles, are East Islet and East Rock ; the latter, which is nearly level with the water's edge, forms the southern horn of Lansew Bay, Video Islands, Fisherman's Group Islands, and the chain of islands between it and Taeshan bounding it on the north. Video Island (Articles 287 and 312) bears E.N.E. *Video.* *Articles 287 and 312.*  $\frac{1}{2}$  E., 21 miles from the summit of Pootoo Island. It is about 500 feet high, has a bold precipitous appearance, is nearly

square ; and is in  $30^{\circ} 7' 8''$  N., and  $122^{\circ} 46'$  E., the description of it, as well as of the islands to the northward, will be found under the head "North part of the Chusan Archipelago," article 312. A description will now be given of the islands between Chusan and Ningpo, from thence to Chapoo and the entrance of the Yangtsekeang River, and after which the north part of the Chusan group.

*Just-in-the-Way.*

297. On leaving Chusan for Ningpo, the course after passing Bell Island is west for Just-in-the-Way, a small rock 20 feet high, with rocks  $1\frac{1}{2}$  cables' lengths off its S.S.E. side, lying nearly midway between Kintang and Tygosan Islands. The latter lies opposite to Tower Hill Island, having on the north end of it an insular point with a reef a cable's length from it : there is a reef also S.S.E. 2 cables' lengths from a rock off the S.E. point of Kintang (Algerine Point); and a reef which covers at half tide off the south end of the same island (Alligator Point). The insular point at the north end of Tygosan Island, in one with Tower Hill Island, will lead to the southward of it. There is very fair anchorage to the S.E. of Just-in-the-Way Islet, between it and Tygosan Island, which will be found convenient should there not be sufficient tide to take a vessel on to Chinhae, the anchorage outside of which is much exposed. The mud dries from the main upwards of three quarters of a mile from high-water mark, is steep-to, and the lead does not give warning ; there are, however, some small islets on the face of it, near the eastern of which, Tayew, is a boat creek, from whence there is a paved footpath leading to Teintung and so to Ningpo ; the whole distance being about 6 leagues, the two last of which may be performed by canal.

*Just-in-the-Way.*

298. Having passed the south point of Kintang Island, the Deadman, a square islet, will be seen ; the channel between it and Kintang Island is rather less than 2 miles, with deep water and rapid tides. There is a channel south of the Deadman (between it and the main), which is half a mile wide ; but it is not recommended, as the tides are very violent, and the limit of shoal water on the south side is not well marked.

*Blonde Rock.*

• The Blonde Rock (which shows at low-water spring tides) lies a short half mile to the northward of Deadman Island. The bearings from it are the easternmost islet of the Deadman

group in one with Sanchow Islet bearing N.W.  $\frac{1}{4}$  N., Taping Point on Taping Island N.W. of Kintang Island N.  $\frac{1}{2}$  E. West extreme of Dumb Islet (the rocks west of the Deadman) S.W.  $\frac{2}{3}$  W., the beacon hill at the west side of the entrance to Chinhae in one with the citadel bearing W.S.W., will keep a vessel to the northward of it.

299. Square Islet, or Tsele, lies 3 miles to the N.W. b. W. *Tsele or Square Island.* of Deadman Islet. There is a patch with  $2\frac{3}{4}$  fathoms S.E. b. S. from its north end 6 cables' lengths; the same leading marks as for the Blonde Rock will also clear this shoal, taking the vessel to the southward of it. H. M. S. Conway lay with Tsele Islet bearing E.N.E., and the inner Yew or Triangle south; this anchorage during the summer is safe, but during the autumn and winter, violent gales with thick weather rise rapidly, causing an uneasy sea, in which vessels will have difficulty in getting their anchors; consequently the roadstead at Just-in-the-Way, or the harbour of Taoutse, at the N.W. end of Kintang Island, should be resorted to at this season of the year.

300. If bound to the Yung or Ningpo River, the Yew *The Yung River, Islands or Triangles*, three in number, will be seen bearing *leading to Ningpo.* S.S.W. from Tsele Island; these form three entrances, the easternmost of which is between the islands and the east *Eastern Entrance.* bank of the river. The first danger in this channel is the Nemesis Rock, which is covered at half flood, and lies E.N.E.  $\frac{1}{4}$  E.,  $2\frac{1}{2}$  cables' lengths from the summit of Tayew or the eastern Triangle. By keeping the inner Triangle or Passyew open of the south point of Tayew this danger will be avoided. Having passed the east point of the outer Triangle, keep it and the middle Triangle or Seaouyew on-board, to avoid a sunken rock (Sesostris Rock), with 8 feet on it, which lies in mid-channel, and is to the southward of the latter. When on it a small island 8 miles west of Chinhae (Friendly Island) is in one with the high Bluff (Talung) beyond it, bearing N.W.  $\frac{1}{2}$  W. Peak Islet (a remarkable rock on the east side of the river) in one with Cone Hill bearing S.W.  $\frac{1}{2}$  S., will keep a vessel to the westward of it.\*

\* The merchant barque *Moltan* struck on a rock having 9 feet on it and 18 feet close to; the marks for which are Friendly Bluff Islands just showing to the northward of Passyew, and the northern extreme of Look-out Hill East.—*Nautical Magazine*, year 1853, page 395. G. B. Sicain, Master, R.N.

Then steer to pass a cable's length to the eastward of Passyew Islet, which must not be approached nearer than half a cables' length, nor further off than  $1\frac{1}{2}$  cables' lengths; and then for the point under the citadel, taking care that the tide does not set the vessel over to the eastern shore, where the water shoals to 2 fathoms 5 cables' lengths from the shore. The

*Middle  
Entrance.*

second passage, or that between Seaouyew and Passyew is probably the best of the three; a mud spit extends North-westerly  $1\frac{1}{2}$  cables' lengths from the west end of Seaouyew, which will be avoided by keeping the citadel on the hill open of the west end of Passyew, and pass as before to the east of Passyew.

*Western  
Entrance.*

The channel between Passyew Islet and the Citadel Point has 2 fathoms at low water; it is, however, the broadest and best for small vessels if the tide has risen: the only danger being the Tiger-tail Rocks which cover at high water, and lie rather more than a cable's length N.W.  $\frac{1}{2}$  N. from the summit of Passyew Islet. The S.E. foot of Joss-house or Citadel Hill in one with Cone Peak are the marks for them. The Citadel Point is steep-to on its east side, and vessels will find good shelter under the fort. The stakes and sunken junks which blocked the channel from the Citadel to Peaked Island are now removed; this may have caused some change in the mud banks and soundings outside. A stranger will do well to examine the entrance in his boat before taking a vessel in, as in case of danger the strength of the tides would render it difficult to extricate her. Ningpo is  $11\frac{1}{2}$  miles from Chinhæ by the river, which is nearly straight, the reaches all lying to the southward of west except one (which is short); the depths in mid-channel varying from 5 to  $2\frac{1}{4}$  fathoms, the average width of the river being 2 cables' lengths. At the city the river separates into two branches, one taking a N.W., the other a S. b. W. direction; the latter, which is barely a cable's length wide, is crossed by a bridge of boats a quarter of a mile beyond the junction. The British consulate is on the northern bank (opposite the city,) of the N.W. arm; the turn is difficult to take from its sharpness; the crowded state of the river obliges large steam vessels to anchor below and wait until it is cleared, so as to give them room to turn in. At the city it is high water at full and change at 1 o'clock, and the tide rises 8 feet 10 inches.

301. Port Taoutse, or Lookon, lies 5 miles N.E. from Tsele *Port Taoutse*. Island. It is formed by Kentang and Taping Islands. The entrance to it is on the southern side, between Taoutse and Kintang Islands, and the channel barely 2 cables' lengths wide; between Taoutse and Taping Islands there are not more than 8 feet at low water.

302. Vessels bound to the north from Tsele Island should *From Tsele to Chapoo* leave with the first of the flood, which on full and change days makes here at 5h. 30m. N. b. W.  $3\frac{1}{2}$  miles from Tsele Island is a middle ground with less than 2 fathoms on it, to avoid which vessels must keep over towards the Kintang shore, and if drawing 18 feet water, should not bring Tsele Island to the eastward of south. There is a passage to the southward of this middle ground for vessels of 15 feet draught.\* The coast line to the N.W. of Chinhac is mud, drying at low water for nearly three quarters of a mile from the embankment, off which the water shoals suddenly. At the distance of  $7\frac{3}{4}$  miles from Chinhac, and three quarters of a mile from the shore, are the Friendly Islands, a group of five small islands, inside of which there is shelter in 3 fathoms water.† Care must be taken in rounding the west end of the largest islet to avoid a spit which extends 3 cables' lengths from it. Four miles further to the N.W. is a high bluff, Talung Island, rising to the height of 900 feet, which forms the southern horn of the Tsientang estuary, or Hanchou Bay. The Seven Sisters lie 9 miles to the north of *The Seven Sisters*. High Bluff, and, although small, will afford shelter from northerly winds; the passage between them and the main is *High Bluff, or Talung*. 4 miles, and the depth of water varies from 6 to 2 fathoms, shoaling towards the latter. At the edge of the mud, which here dries 5 miles from the hills, are some small hillocks, from whence the coast line trends to the west. The tides here begin to increase their velocity, running at springs 6 knots. The Kite transport was lost upon this bank, the tide turning her over the moment she tailed on it. To the north of the Sisters half a mile is a reef which shows at low water, and bears from the western islet of the group N.N.W.

\* In which there are two patches of 5 feet on which H.M.S. Contest grounded, as shown by the chart.

† The water in the vicinity of Friendly Bluff Islands is decreasing fast.  
—*Remark Book, H.M.S. Medea, 1849, Commander Thos. H. Mason.*

*North Island, or Nanho.* 303. North Island, or Nanho, bears N.  $\frac{3}{4}$  W. 15 miles from Tsele Islet (Article 299); it is the largest and easternmost of the first group of islands in this direction, being flat-topped, 216 feet above the sea, three quarters of a mile in extent from E. to W. and cultivated. The water deepens close around it to 26 and 32 fathoms, in consequence of which vessels cannot anchor near enough to get shelter, but the holding ground is good. North of it is a small rock which always shows. W.  $\frac{1}{2}$  N. 3°7 miles from it is West Stork Islet; there are 8 and 9 fathoms water between them. To the westward of West Stork, 2 miles, are the Seven Sisters mentioned above.

*Volcano Group.*

304. The Volcano group of islands lies N.E.  $\frac{1}{2}$  E. 9½ miles from Nanho. The northernmost islet has a reef north of it 1½ cables' lengths. There are many sunken rocks among the islets off the west face of this group, amongst which vessels ought not to go, but they will find shelter from northerly winds on the south side of the Volcano, and to the westward of the largest islet of the group.

*Seshan Islands.*

305. The easternmost of the Seshan Islands lies due north 18 miles from Nanho Island; the largest islet of this group is about 400 feet high, and has six small islets about it; in working up towards them, some casts of 3½ and 4 fathoms were got with the eastern island bearing N. b. E. It will therefore be advisable with a heavy ship not to stand into Hanchow Bay, unless bound to Chapoo, in which case pass within 3 miles to the southward of the East Seshan, and steer for the southernmost of the middle Seshans. This group lies 6 miles to the W.N.W. of the East Seshan, and consists of one large and eight smaller islets, the southernmost of which is a small rock nearly level with the water's edge, 4 miles from the highest. The western islet is an abrupt cliff with a house on its summit; neither of these two groups are sufficiently large to afford shelter; but the western group which consists of three islands, and lies 11½ miles to the W.N.W. of the middle group, does; very fair anchorage will be found in its neighbourhood. After passing the west Seshan the low land on the north side of the Hangchow estuary will be seen, and to the southward the Fog Islets, a group of five low rocky islets bearing W.S.W.  $\frac{2}{3}$  W. 14 miles from the Middle Seshans, the depth of water about them being 5 and 6 fathoms.

*Fog Islets.*

306. Chapoo will be readily known by the hills in its *Chapoo*. vicinity, as well as by the islets which form the roadstead, on the eastern of which is a remarkable white house. Vessels should round the southern islet at half a mile and haul up for the houses which will be seen to the west of the hills. The anchorage is sheltered from E.N.E. to S.S.W. ; the velocity of the tide at springs was 5 knots, the rise and fall being 25 feet. The mud dries half a mile from high-water mark, is steep-to, the lead gives no warning.

Four miles to the south of South Island (Chapoo Roads) is a shoal on which the merchant ship Bentinck tacked in 3 fathoms, and where there is probably less water; should the tide set vessels in this vicinity, it will be advisable to anchor. The horns of Chapoo Bay are 9 miles apart, laying N.E. b. E. and S. W. b. W. of one another, the depth of the bay being 3 miles. Off the southern horn the velocity of the tide was  $7\frac{1}{2}$  knots, and the rise and fall 30 feet. In this bight of the bay are some islets and a pagoda; the latter most likely is in the neighbourhood of Haining. Thirteen miles from Chapoo there is a bay, protected in some measure by a small islet, in which several boats were lying aground. On the hill over it was a four-gun battery and a numerous garrison; this place, answering to the name, is supposed to be the Canpu of Marco Polo. Tseenshan, which is 24 miles to the west of Chapoo, appeared to be an islet connected with the main by a causeway under which boats were lying; on it is a 4-gun battery and a small pagoda, and assuming *Canpu*. the geographical position which the Jesuits assign to Hanchowfoo to be correct, this place is 60 miles from the city. It *Tseenshan*. was in this neighbourhood that the H.E.I.C. Steamer Phlegethon experienced a tide of  $11\frac{1}{2}$  knots at springs and 8 at neaps; the depth of water across the estuary at low tide was found to be less than  $1\frac{1}{2}$  fathoms.

307. Vessels bound for the Yangtsekeang River had better *Rugged Islands*. not enter Hanchow Bay, but keep to the eastward of the Seshans, and between them and the Rugged Islands. The south-western horn of the Rugged Islands bears from the East Seshan E.  $\frac{1}{2}$  N. 13 miles. These islands afford shelter in both monsoons, but the tide sets through them with considerable velocity. Tayung, the largest and highest of the group, is 660 feet above the sea; it differs from the rest by being

round-topped, whereas the others are, as their name denotes, rugged; under the south side of the islet west of Tayung is Pirate's Bay, which will be found a snug anchorage in the N.W. monsoon, and better shelter than that within the Horns. Off the east end of the bay is a reef on which the sea generally breaks. The largest island on the north side of the group is Tripoint, remarkable for its triple peak, and east of it is Spire Island, on which is a curious pinnacle.

*Hen and Chicks.  
Gutzlaff Island.*

308. N.E. b. N.,  $3\frac{3}{4}$  miles from the North Horn of this group, is an islet with several rocks N.W. of it called the Hen and Chicks, and from the same Horn, Gutzlaff Island, which is 210 feet high, and has a small rock to the northward of it, bears N.E. 12 miles. A shoal with only 10 feet water over it has recently been reported bearing from Gutzlaff Island S.W. 7 miles, which will place it from the Hen and Chicks E.N.E.  $\frac{1}{2}$  E. not quite 2 miles. Vessels leaving the Rugged Islands may pass on either side of the Hen and Chicks in 6 and 7 fathoms, and also on either side of Gutzlaff Island.\*

*Cape Yangtse.*

309. Yangtse Cape, forming the northern end of Hanchow Bay, bears W. b. N. 17 miles from Gutzlaff Island; on it is a beacon 25 feet in height and 35 feet above the sea. The land hereabouts is very low and quite level, having been entirely gained from the sea, and the mud dries at low water half a mile from the embankment; under the beacon there is anchorage in  $4\frac{1}{2}$  fathoms (and fair shelter unless the wind draws to the eastward). At Cape Yangtse a mud bank commences, the eastern edge of which in  $2\frac{1}{2}$  fathoms is 14 miles from the shore, and bears N.  $\frac{1}{2}$  W. from Gutzlaff Island 12 miles; from hence it trends to the westward, forming the entrance to the Yangtsekeang River, and it is along this bank that vessels have to feel their way into the river.† So long as the weather is clear Gutzlaff Island forms an admirable mark, and it has only to be kept to the westward of south until it is distant 16 miles, when vessels may steer N.W. b. W., but in thick weather and a working breeze with a variable tide under

*Yangtsekeang  
River.*

\* Report from many sources states that a bank of only  $2\frac{1}{2}$  fathoms extends off the west side of Gutzlaff Island for one mile; the chart shows 5 fathoms in this place.—*Remark Book, H.M.S. Contest*, 1851, *John Thomas, Master*.

† Great attention to be paid to the set of the tides at the entrance of the river, and to the lead.—*Commander Chs. Mathison, H.M.S. Mariner, Remark Book for 1850*.

the lee, it is difficult to ascertain when 16 miles have been made, and they are liable to be horsed over to the north bank, where several have been wrecked.\* The southern side of the channel is no doubt the one to border upon, yet, as will be seen by the chart, the edge of the bank is not sufficiently defined to permit any vessel over 15 feet draught to work, upon it with confidence; a large buoy with a bell attached is a great desideratum at the turning point on the south side and it is to be hoped a light vessel will yet be placed at the north sandhead.†

310. The Amherst Rocks, which are from 15 to 20 feet above *Amherst Rocks.* high water, lie N.N.E. 25 miles from Gutzlaff Island. The depth of water in the neighbourhood is 5 and 6 fathoms, and the following courses will ensure deep water into the river from them: first course W.S.W.  $\frac{1}{2}$  W. 14 miles, then N.W. b. W.  $\frac{1}{2}$  W. 15 miles, when the low land on the southern side should be seen; if not, edge further to the westward, or if the weather is thick, feel the shoal water on that side, as the north sandhead gives no warning, unless it is by the lead indicating hard bottom. From the tide setting across and not into the river, great care must be taken that the vessel makes sufficient southing on the first course given from the Amherst Rocks, for which purpose, as well as to ascertain her true rate over the ground, use the deep sea lead instead of a log ship, and take the opposite to the bearing of the line as the course. The Ariadne Rock has 5 feet water on it at low tide; from *Ariadne Rock.* it the bearings are Amherst Rocks E. b. N.  $7\frac{1}{4}$  miles; Shawei-*Shaweishan* shan Island North, and Gutzlaff Island S.  $\frac{3}{4}$  W. After passing the Ariadne Rocks the break on the north sandhead will sometimes be seen, in which case the deepest water is close to it, and the course along it N.W.  $\frac{1}{2}$  W. The eastern end of the sand bears from Shaweishan Island S.S.W.  $\frac{2}{3}$  W., and it is distant from the Amherst Rocks 16 miles. Should the lead indicate hard bottom, and there be much sand amongst the

\* The beacon on the Cornwall Bank does not exist — *Wm. Hy. Freeman, Master, H.M.S. Barracouta, 23 July 1854.*

† In running for the Yangtsekeang River, if the weather be tolerably, clear, the highest peak of South Saddle Island S.E. b. E., will be found to be a good leading mark for entering between the banks; after the vessel is entered, a sure hold should be kept by her of the south bank.—*Remark Book, H.M.S. Medea, 1848. William Brodie, Master.*

mud on the arming of the lead, the probability is that the vessel is on the north shore.\*

*Tides.*

At the entrance to the river it is high water on full and change days about noon or half an hour before, the rise and fall varying from 12 to 18 feet. The stream of flood comes from the eastward, drawing to the southward about the last quarter and round to the ebb from the westward; the velocity is from 5 to 3 knots; at Woosung it is high water an hour later, and the rise is 18 feet.

*House Island.*

Having run 12 or 13 leagues from Gutzlaff Island or the Amherst Rocks, House Island (which has been embanked from the sea and built upon since 1840) will be seen on the north side of the river, and this is the first object by which it can be told how far the vessel has advanced up. After passing this island keep over to the south bank, but do not close it within a mile, as the water shoals suddenly on that side. The channel here is about  $1\frac{1}{2}$  mile wide. With a quick leadsmen there would be room to stay a vessel drawing 12 feet on the first cast of hard bottom felt by the lead.†

*Woosung.*

311. As the vessel advances up the river, Paoushan Point and Bush Island will be seen; by keeping the former to the northward of W.N.W.  $\frac{1}{2}$  W., the knolls off the southern shore will be avoided. There is now a beacon in front of Paoushan which keep open to the southward of the tower until another large beacon in Woosung is on between two joss poles bearing W.S.W., when it may be steered for.‡ Chinese pilots are in attendance here, and the best anchorage outside will be found with the leading marks on, and Bush Island bearing N.W. b. W.;

\* J. Thomas, Master H.M.S. *Contest*, 1852, states that where the Admiralty Chart of the Yangtsekeang River on each side of Shaweishan Island gives  $3\frac{1}{2}$ ,  $3\frac{1}{4}$ , and 7 fathoms, there were found by that vessel only  $2\frac{1}{4}$ .

† The remarkable tree on the right bank of the Yangtsekeang River, 3 miles from the entrance to Woosung River, does not exist.—*Remark Book, H.M.S. Medea*, 1849, *Commander Thos. H. Mason*.

‡ The old beacons in the channel to Shanghae have been taken away, and replaced by a target and pair of sheers, which being brought between the two joss poles, and bearing W. b. S., will lead a vessel in, clear of the sands, to the anchorage at Woosung.—*Remark Book, H.M.S. Fury*, 1849, *T. H. Williams, Master*.

Commander John S. Ellman, H.M.S. *Salamander*, states that “on the 23 March, 1853, whilst proceeding up the Woosung River against the ebb tide, that vessel grounded on a bank in fifteen feet, and remained fast. The

the latter must not be approached nearer than  $2\frac{1}{2}$  miles. In conclusion, it may be observed that it is a somewhat difficult place for a stranger to make in fine weather, and no vessel should attempt it in bad, without a good departure either from Gutzlaff Island or the Amherst Rocks, and strict attention to the course and distance made good.

A return will now be made to the N.E. part of the Chusan Archipelago.

312. Vessels bound for Shanghai, and not intending to call *N.E. Part of* at Chusan or Ningpo, should pass to the eastward of Chusan *the Chusan Archipelago.* and enter the archipelago to the northward of that island. In the northern monsoon they should endeavour to make the Barren Isles, three in number, about 50 feet high, lying *Barren Islets.* nearly E. and W. of each other, and three quarters of a mile in extent. To the south-eastward of the eastern rock is a reef awash distant from it 2 cables' lengths; from here vessels can conveniently find anchorage among the Saddle Group Islands should the tide or weather be unfavourable for entering the river. These (the Barren) islets are in  $30^{\circ} 43' N.$ , and  $123^{\circ} 7' 2'' E.$  It may so happen that vessels cannot fetch so far to the northward as the Barren *Video Island.*

following bearings were taken with the ship's head S.E. b. E.  $\frac{1}{4}$  E., the local deviation of the standard compass being one quarter of a point westerly:

"The village battery at Woosung, just shut in with the point of the right bank bearing N.W. b. N., and the small creek (dry at low water) with the willow hedge on its upper bank N. b. E. From soundings, taken across the river in a line with the ship's bow, nothing less than 9 feet was found, with a channel of  $2\frac{1}{2}$  fathoms near the right bank, and 6 fathoms on the opposite side, where the ship was anchored when again floated. In a line astern, the water gradually deepened to 17 feet, and ahead, decreased to 7 feet for about a quarter of a mile; the least water at the ship being 10 feet forward, and 11 feet aft at low water. This bank, which was evidently of a quicksandy nature, from the ship's bow sinking down to 16 feet 6 inches, whilst there was only 10 feet water, was formed by an alteration in the head of the river, and the deposit from a new channel, which is being gradually bored out by the flood tide on the left or N.W. side of the river, but as yet has not sufficiently advanced to cross the head of the reach and open into the former and present channel, close to the right bank, and which is also gradually decreasing its depth abreast of this bore. It was particularly noticed, whilst aground, that the strength of the tides (both ebb and flood) was in the deepest water. In the old channel abreast of us, which is now nearly a flat, and over which the junks sound with their long bamboos, the ebb was quite weak, and over the bank on which the Salamander was, a strong eddy was running directly opposite to the stream of the ebb."

*Anchorage under Chookea.* islands, but have only reached the parallel of 30° N., in which case the island of Video, in 30° 8' N. and 122° 46' 30" E.,

will be conspicuous (Articles 287 and 296). It is 500 feet high, with bold cliffs, and a remarkable white cliff, which shows when the island bears N.W. b. N. E.N.E.  $\frac{1}{2}$  E., 5 miles from it, are four rocks (the Four Sisters); and E. b. N., 9 miles, are

*Two Brothers.* two rocks (the Two Brothers). The depth of water in this vicinity is above 30 fathoms; any cast below that depth will, in thick weather, point out that the vessel is among the chain of islands. The most remarkable land to the south of

*Article 276.* Video is Chookea Island (Article 276), on which there is a round-topped peak, 1,164 feet high, in 29° 54' N. and 122° 25' 30" E. To the eastward of Chookea are several

*Tongting Island.* islets. Tongting, the outer one, about 40 feet high, is in 29° 51' 30" N., and 122° 35' 30" E. There are detached reefs to the south-west of it. W. b. N., 3 miles from Tongting Islet, is Pihting, another islet very similar. If unable to turn to windward, anchorage will be found to the S.W. of Cambria Point (the S.E. end of Chookea Island), or on the south side of Ousha Island. If able to weather the north end of Chookea Island, the south side of Pootoo Island will be the best stopping place. The anchorage, in 12 fathoms, is under the hill with three chimneys on it. The mud-bank from the shore is very steep, going from 12 into 2 fathoms. On the sandy bay west of the causeway, where the pilgrims land, is a well of good water. There is a rock nearly awash, bearing

*Pootoo Island Articles 287 and 296.* N. b. W.  $\frac{1}{2}$  W., 7 miles from Tongting Islet; from it Pootoo Island (Articles 287 and 296), known by a look-out house on its summit, bears W.N.W.  $\frac{3}{4}$  W.; the high land of Chusan, forming a table-top, will be seen at the back of it. In the same direction as the summit of Pootoo Island, but distant only 2 miles from the above rock, is an islet, 30 feet above the sea, from which Loka, the northernmost of the islets on the N.E. face of Chookea, bears W. b. S. Off the S.E. point of Pootoo Island is a small rock; and 4 miles to the N.E. of Pootoo Island are four pinnacle rocks (the Ninepin Rocks), with reefs about them. N.E. Island, which is something like a haystack, lies N.W. of them 1 mile. In a handy vessel, from here the best route to the northward will be through Lanseu Bay (Article 294) and the Taeshan Channel; but heavy vessels had better

pass to the east of Video, and get into the archipelago further north.

313. From Video Island the chain of islands extend *Fisherman's Chain*. W.N.W.  $\frac{1}{2}$  W. 45 miles, terminating in the Volcano Group off Hanchow Bay. Between Video and the Fisherman's Group there is a channel 2 miles wide; but among the Fisherman's Group (consisting of four islets and several rocks) vessels ought not to go. West of them is, perhaps, the best channel through the chain; it lies S.S.W.  $\frac{1}{2}$  W. from the Beehive (a remarkable rock to the northward). From hence to Keushan Island the *Keushan Island*. distance is 10 miles. The channels between any of the intervening groups ought not to be attempted, as, from the character of the land there are, no doubt, many sunken rocks. Under the largest of the group (Hall Island) shelter may be found; but vessels had better go on to Keushan Island, and anchor in the bay to the westward of Point Eden (the S.E. end of the island), bearing in mind that the bottom of the bay is shoal. Along the south side of Keushan Island are several islets and rocks, to which a berth of 2 cables' lengths should be given. To the southward, 3 miles, are the Doubs, three low cliff islets; and west of the Doubs, 3 miles, are the Cliff Islets. The channel between them and the west end of Keushan Island is  $1\frac{1}{3}$  mile wide. From Cliff Islets the Taeshan Channel bears north; it is formed by *Taeshan Channel*. the islets of Pou and Pouti to the west, and Fooning Island, with the Cliff Islet south of it, to the east. Off the west end of the latter is a reef, which is covered at high water. N.W. b.W. 6 cables' lengths from Fooning Island are two low rocks. The channel between them and Fooning Island is shallow. North of these rocks, 3 cables' lengths, is the south point of Changtoo Island, which is not steep-to; but there is a narrow channel, carrying 5 fathoms, north of the rocks.

314. The Taeshan Channel is 1 mile wide. Both shores are shoal-to, and there is a sunken rock S.S.E. 2 cables' lengths from the projecting point on the Taeshan shore. To the N.E. of this point, 1 mile, is the island of Gansu, which has a double peak on it, and there are two islets on each side; the channel lies between it and Changtow Island, under the north head of *Changtow Island*. which is a low rock. Changtow Peak rises over the west side of the island; its height, 920 feet, rendering it one of the most conspicuous objects of the chain.

Taeshan  
Island.

The directions for passing south of Taeshan Island, and between Kwan and Sheppey Islands, have already been given in Articles 293 and 294; but it remains to describe that island and the channels between it and the Volcano Islands. Taeshan Island is 8 miles long and 5 broad, being third in point of size in the archipelago, those of Chusan and Luhwang being larger. It is very populous, and carries on an extensive salt manufactory from sea-water. Off the S.E. end of the island are nine islets, among which vessels have no business to go. There is a passage immediately east of Kwan Island; but, owing to strong tides and the flaws under the bluff land of this island, vessels had better pass south of it and between Kwan and Kwisi Islands, where there is a channel 1 mile wide; the mud dries 3 cables' lengths from the west end of Kwan Islands. To the north of Kwan and Kwisi Islands are three islets; the best channel is between the western islets (Ning) and Kwisi, after which the vessel can haul up for the Taeshan shore and anchor in 4 or 5 fathoms off the Woohou Creek, observing that there is a reef which covers at first quarter flood, N.b.W.  $2\frac{1}{2}$  miles from the summit of Kwisi; when on it Ellicott Isle bears W.S.W.  $\frac{1}{2}$  W.  $2\frac{1}{4}$  miles, and the north end of Peshan Islet, in one with the north point of Kwan Island bearing E.S.E., will place a vessel south of it. The mouth of Woohou Creek, bears N.E. from the summit of Fisher's Island (or Changpih) 6 miles; it was here that the Chinese forces assembled for the retaking of Chusan. This creek runs through the centre of the island, but is not accessible to large boats at low water. There is another creek near a village further to the west, but with these exceptions the whole face of this side of the Island is difficult of access in consequence of the mud drying a long way from the shore. At Towtow Point (the west end of the island) the hills come down to the waters edge, and midway between it and

Miles and Ellicott Island.  $\frac{1}{2}$  Changpih Island are Miles and Ellicott Isles, with 5 and 7 fathoms in their vicinity. Show Islands (one of which is high) lie 6 cables' lengths to the westward of Towtow Point; the channel between them having 4 fathoms at low water. On the north side of Taeshan Island are four islets which are too small to afford much protection in the N.E. monsoon, but during the summer good anchorage will be found off the town near the centre of the island.

315. The East Volcano lies 5 miles to the westward of *Volcano Island*. Show Islands; it is 4 miles long from north to south; there are four peaks on this island. East of its south point is an islet, and between it and Show Islands are Becher Islets (two in number, close together, with steep cliffs); North of them  $1\frac{1}{2}$  miles are two low rocks. Vessels passing between Show Island and the East Volcano should be careful not to stand too close to the latter, as the water shoals to 2 fathoms at  $1\frac{1}{4}$  miles from the shore. East of its north point 3 cables' lengths is a half-tide rock. Anchorage will be found west of the East Volcano, to the northward of a flat rock, but the channel between East and West Volcanoes is shoal; nor should the group of low islets laying to the westward be entered, as there are many sunken rocks among them. The tides in this vicinity will be found to have increased their velocity, the flood setting W.N.W. and the ebb E.S.E.; it is high water on full and change days half an hour before noon, and the rise and fall is 15 feet; in light winds a wide berth should be given to all the islets hereabouts. Skead Islet lies to the north of Show Islands  $4\frac{1}{2}$  miles; on its N.W. and S.E. sides are smaller islets; the depths of water between it and the Rugged Islands to the northward varies from 5 to 7 fathoms.

316. N.N.E.  $\frac{1}{4}$  E. 19.8 miles from Video Island is Leuonna *Leuonna Island*. Island, appearing from the southward as three abrupt round-topped hummocks. The Barren Rocks lie N.N.E.  $\frac{3}{4}$  E.  $20\frac{1}{2}$  miles from it, and the Beehive Rock, W.S.W.  $12\frac{1}{2}$  miles; this rock is about 35 feet high, having a rock awash 3 cables' lengths east of it, and a depth of 14 and 16 fathoms around it; bears from Video Island N. b. W.  $\frac{1}{2}$  W.  $14\frac{1}{2}$  miles. W. b. N. 13 miles from the Beehive Rock is the large island of Chinsan, having several small islets on its eastern and northern *Chinsan*. face; the best anchorage in the N.E. monsoon will be found to the west of the southern islet, and between it and Chinsan, there is also tolerable shelter on its western side off Pennell Point. The island is eight miles long and lies  $5\frac{1}{2}$  miles to the N.E. of Taeshan Island; the channel between them to having from 7 to 12 fathoms water.

317. The South Saddle and East Saddle Islands bear from *Saddle Group Islands*. the Barren Islands W. b. S. 17 miles, and from Leuonna Island N.N.W. 18 miles. South Saddle island is rugged, the highest part (680 feet) being at the north-east end; there is

fresh water at the east end of the East Saddle island. In the bay on the east side of South Saddle Island is a rock which shows at low water; when on it the highest part of the rocky islet close to the eastern point of the bay is in one with a conical hill over the west point of East Saddle Island. The most convenient anchorage will be found under the East Saddle Island, and in the event of being caught in a southerly wind vessels might run through between them, taking care to keep as close as possible to South Saddle Island, as there is a patch of 3 fathoms in the centre of the channel, and three rocks awash north of it.

*Childers Rock.* The Childers Rock (which is uncovered at low tides) bears from East Saddle Island S.  $\frac{3}{4}$  E. 4  $\frac{3}{4}$  miles; when upon it, the Barren Rocks bear E.N.E., Leuonna Island S. b. E.  $\frac{1}{3}$  E., and the summit of Senhouse Island W. b. N.; the lead gives no warning, there being 24 fathoms close to it.

Eight miles to the N.W. of South and East Saddle Islands is North Saddle Island, (780 feet high) in  $30^{\circ} 50' N.$ , and  $122^{\circ} 41' E.$  Between these is False Saddle Island, and

*Saddle Group.* S.W. of it are the Side Saddles, two narrow islets which will afford shelter, but not as good as that under South and East Saddle Islands. The North Saddle Island forms the north end of the archipelago, and from it the Amherst Rocks at the mouth of the Yangtsekeang, bear N.W.  $\frac{1}{4}$  N., 26 miles, the depth of water gradually shoaling from 12 to 6 fathoms. The tides are regular; the flood setting to the N.W. and the ebb to the S.E., it being high water an hour before noon on full and change days, and the rise 14 feet.

*Parker Islands.* 318. West of South Saddle Islands, 13 miles, are the Parker Islands, of which Raffles Island is the largest; between 3 and 4 miles from the former is the Bet Rock, not much elevated above high water. Off the N.E. point of Raffles Island 5 cables' lengths is a sunken rock, and to the S.E. of it 2 miles is Senhouse Island with steep cliffs; there is a good channel between them, and anchorage will be found on the south side of Raffles Island in the N.E. monsoon. Brooke Island lies 1 mile S.W. of Senhouse Island; the channel between them should not be used, as the wind is liable to fail under the latter; there is, however, a good passage west of Brooke, and between it and Bonham Isles, which is 2 miles wide. Off the N.W. end of Raffles Island, and distant from it  $2\frac{1}{2}$  miles are the Elliot Isles.

on the SW. side of which H.M.S. Plover anchored, and found fair shelter, with the wind blowing hard from the northward. From these islands Gutzlaff Island bears W.N.W.  $\frac{1}{2}$  W., 10 miles. The Rugged group (which have been already described, article 307,) lies 15 miles to the W.S.W. of Raffles; between them are the Morrison Islands, the largest of which is very precipitous. All these islands, with the exception of the Barren Rocks and Leuonna Island, are inhabited, and small supplies may be obtained, but the natives (except at Taeshan Island) are in a very miserable condition, owing to the constant visitation of pirates.

319. Annexed is a copy of sailing directions for the Yangtsekeang, which appeared in the North China Herald, by some one who signs himself "a Young Salt." Whoever he is he has had his eyes about him, and as they contain good practical rules in a short compass there is no doubt but that they will prove useful.

" The directions given by the surveying officers are, I think, too vague to be of much use in practice to strangers; particularly, in giving courses and distances to be made good, where there are no marks available, and the strength and direction of the tide are constantly varying.

" The Admiralty Chart of 1843, drawn from Collinson's survey, is very correct; and every vessel bound to Shanghai should be provided with it.

" The following remarks I think may prove of service, as the result of several years acquaintance with the place, in all weathers.

" Vessels bound to Shanghai should make the Barren Islands, or Saddle Group, in the Northerly monsoon, as being the most weatherly land fall; but in the Southwest monsoon, it is more advisable to steer for Video, a bold precipitous island, about forty miles more southward.

" If late in the day, anchorage should be sought under the Saddle Islands, which afford shelter in both monsoons.

" Leaving the Saddle Islands, keep the North Saddle bearing about S.E. by E. to pass Gutzlaff, at a distance of about fifteen or sixteen miles; and no stranger ought to enter the river without seeing Gutzlaff, until some mark be erected for the North Sand Head.

“ Thus far the tide sets N.W. by W. and S.E. by E. from one and a half to three and a half knots ; but it is affected greatly, both in direction and velocity, by the prevailing wind.

“ Steering on to the north-westward, bring Gutzlaff to bear S.S.E. and sink it on that bearing, which will be at a distance of about twenty-two or twenty-three miles ; after which, steer N.W.  $\frac{1}{2}$  W. and if the low land is not soon seen, on the port bow from the mast head, keep more westerly by the lead, which is here a safe guide. The deepest water is near the North bank, which should always be approached with caution, as it shoals very suddenly. When the first point bears W. by N. or W. the water deepens to six fathoms ; this point should be passed about two miles off, as the bank extends a long way out, and there are several knolls off it, on which ships have touched.

“ Having passed the point, gradually close with the shore to a mile, and keep it about that distance, until the beacon at Woosung is seen.

“ If working up from the Saddle Islands, do not bring Gutzlaff to the eastward of South, until fifteen or sixteen miles to the Northward of it, when it may be brought to bear, S.S.E. and vessels will then be on the edge of the South bank.

“ They may now stand to the westward, nearly into their own draught, bearing in mind that the flood sets W.S.W. round the S.E. edge of it, and the ebb contrary.

“ All vessels should keep as near as possible to this bank, and not wait for a shoal cast to tack, when standing to the North-eastward.

“ I think the defect in the directions hitherto given is chiefly, that vessels are not advised to get hold of the South bank as soon as possible.

“ From the Saddle Islands to Woosung, the tide generally sets N.W. by W. and S.E. by E. when fully made, if no cause such as N.E. gales or heavy rains interfere ; but the flood makes first to the southward, then S.W., and N.W. at the entrance of the river ; the ebb making North, passing by N.E. to S.E., and it is at turn of tide that most caution is necessary to avoid being set out of the channel : I have found the set of the ship, pretty correctly, by the deep sea lead, and have, on several occasions, gone up the river at night by its guidance.

Having passed the first point, which the "Conway's" surveyors mention to be distinguishable by a large tree\* (although I could never make out any tree there, sufficiently remarkable,) —work up from three-quarters of a mile to two miles off shore, and do not wait for a second shoal cast on the North side. The narrowest part of the channel is where the house on Blockhouse Island bears N.E. by E. It is here about one and a quarter miles wide.

"When the ships at Woosung are open a peaked tower near the town of Poushan will be seen to the westward; and on the embankment, in front of it, a beacon, which must be kept a little open, to the southward of the tower, until another large beacon at the entrance of the Shanghae river is on, between two Joss poles behind it, painted red, and bearing W.S.W. This last is an excellent mark for the channel, which is very contracted. The beacon may be brought a little open on each side of the poles, and the water shoals gradually on each side; but the tide does not set exactly fair through.

"Chinese pilots are in attendance here, in sampans, although with a fair wind they are not required as Collinson's Chart of the Shanghae river is very good.

"The foregoing remarks apply to vessels of a heavy draught, say eighteen feet. Small craft may use much more freedom, closing with the South bank, when Gutzlaff is twelve or fifteen miles off to the southward and working up with the lead for a guide, never coming over half three fathoms to the Northeastward. The Southern shore is to be depended on all the way; but, when within ten miles of Woosung, the bank is very steep, and should not be approached under three-quarters of a mile.

"I offer the following suggestions for rendering the navigation of the Yangtsekeang comparatively safe and simple, which may be effected at a trifling cost, considering the valuable trade of Shanghae.

"There is, off the southern end of the North sand, a spit or patch, having four and five fathoms close to on each side, which is the principal danger on entering the river: and every vessel wrecked hitherto, with one exception, has been on

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\* Commander Thos. H. Matson, H.M.S. Medea, 1849, states the tree has been removed.

this spit. I would therefore recommend that a Light vessel should be placed in the bight, between this spit and the main bank, where, with good heavy ground tackle, she would ride out any weather. A vessel of one hundred and twenty tons strongly built, on the principle of the Light vessels at the Sand heads of the Hoogly, would be large enough. She should be fitted with a light, to be distinguishable from a ship's light, or those that the fishermen often show; and visible at least seven miles distant. She should be supplied with two good coir cables, as well as with chains, in order to enable her to ride to the high sea that sometimes occurs; and she should, also, be provided with a life boat, and a European should continually be on board, sufficiently acquainted with the river and with the indications of the weather to warn vessels, by signal or otherwise, of approaching danger.

“ In addition to the light I would place a buoy off the N.W. end of the spit, and another off the South end, which, I think, is all that would be necessary in any ordinary weather; but in standing in from sea I am decidedly of opinion, that a stranger should not attempt to run in unless certain of getting within the bar, if there are indications of bad weather; but rather, he should seek anchorage among the islands, or else put to sea for the night; the former would be preferable in heavy weather, for, unless a good sailer, a vessel would not fetch up again in the N.E. monsoon. The tides are so strong and at times so uncertain in direction, that the best acquainted persons cannot hope to keep a correct reckoning at night; and it would prove very rough riding, should a ship attempt to anchor between Gutzlaff and the North Sands in a gale.

“ I think it quite useless attempting to erect a beacon on the Sand, with the means that would be available here; as the tide runs with great velocity, and I am not aware that any part of the patch has less than nine feet water on it. The flood often comes in with a heavy bore or roller when a southerly wind is blowing; and I do not think that a sufficient foundation could be formed to justify the expectation of a beacon standing the combined action of the wind and tide.

“ No doubt, a beacon might be placed on the North Sand itself, where it dries, in many ways; for instance, by sinking a foundation in iron tanks; but it would be at a greater

distance from the channel, it would cost more to keep a light on it, and, altogether, it would be less useful than a floating light.

“ A YOUNG SALT.”

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220. The following Remarks on the Navigation of the Yangtsekeang, are by G. B. F. Swain, Master, H.M.S. Pilot :

As the greatest difficulty exists in making the low land after losing sight of Gutzlaff, it frequently happening that vessels, after shaping a fair course from a proper departure, are unexpectedly set into shoal water either on the North or South bank, to obviate which endeavours have been made to form some rule for making allowances for the tides, by taking the direction of the ship's head and the depth of water every hour when at anchor at the mouth of the river, and comparing it with the calculated time of high water, as per table; and although it appears there, that the ship did not swing regularly, which may be owing to the direction of the wind, or the anchor being broad on the bow, yet it is sufficient to show that there is a uniformity in the tides, viz.:

That the first of the flood sets southerly, drawing round to the westward, then to the northward, when the ebb commences, which gradually draws to the eastward, and then tends southerly.

This revolving tide has been remarked out as far as the Saddle Islands, and during its revolution does not appear to abate much in velocity: its minimum rate is about  $2\frac{1}{2}$  knots an hour, but at spring tides it runs 5 or 6 knots an hour.

The result of the above has been experienced at all times when underweigh, and on two occasions, Gutzlaff Island bearing S.  $\frac{1}{2}$  E. 16 miles, and steering N. W. by W., the Island was sunk without altering the bearing, (it was lost sight of from the deck at 21 miles distance) obliging H.M. S. Pilot to haul up to W. by S. This happened with the last of the flood, and is the greatest danger to be provided against, as the same soundings continue up to the edge of the north banks which are in the fair channel over the bar, and to a want of knowledge of this fact is attributed the loss of all the vessels that have been wrecked on the north bank.

If running up with the first of the flood, or the last of the ebb, which sets on the south bank, the danger is not so great, as the gradually decreasing soundings would always be a certain indication of the position of the ship.

All ships bound up the river should first make Gutzlaff Island, and be particular in calculating the time of tide, (high water at full and change being 12 o'clock,) and, as it is obvious that keeping along the north edge of the south bank is the most preferable track for making the low land ; paying attention to the tides in steering the course, and occasionally shoaling the water to 3 fathoms, will render this easy.

No vessel should attempt to run for the mouth of the river in thick weather, or at night, as there are authenticated cases of ships having been set to the northward of the north bank, and continuing their course until brought up by shoal water.

When about 3 miles off the land the tide begins to hold a totally different course, the last of the flood stream which runs up to Woosung, two hours after it has done on the bar, sets on the south shore, during the latter part of which time the ebb is making down to the northward of the bank, forcing itself across, and setting on the south shore; when the ebb has fairly made, the stream runs down the river, but the last two hours of the ebb sets off the south shore and over the north bank in a north-easterly direction, therefore too great attention cannot be paid in watching the progress of the vessel running up or down, they being frequently obliged to steer two or more points different from the direct channel course.

The rise and fall of tide should be borne in mind, but it is not to be entirely depended on, as there is a considerable difference in the depth of water caused by the change of the Monsoons, as well as being influenced by the local winds, freshes, &c., independent of the change of the moon.

In working up the river no vessel should be under weigh near the time of high water, especially at spring tides, as not only the danger is much greater in case of her grounding, but the only certain guide is rendered useless, viz.; many parts of the bank are seen at low water, and the eddies formed along the edges of the shoals continue to be visible until the last quarter of the flood.

Vessels leaving Gutzlaff should keep near the south bank, as it is safe into three fathoms as far up as within five miles of the Middle point, where the river begins to narrow, and the south bank becomes steep to; but here bearings of the land are available, and Block House Island is shortly after seen. About a mile and a half southeast of this point (which is remarkable for always having cattle grazing about it) is a large tree, that can scarcely be mistaken, and when this tree bears S.W., it is in one with a bank dry at low water, and extending about a mile and a half off the shore; abreast of this vessels should not shoal their water under 4 fathoms. It is the custom working up or down between the shoal east of Middle point and Woosung to depend entirely on the lead, tacking the first shoal east, but this it is conceived is far too dangerous to be adopted as a general rule, the water shoals so suddenly as not to allow room (especially for a heavy vessel) to tack: cross bearings are very serviceable, but the points of land are not sufficiently defined, nor are the angles formed by them of such a nature as to give the position of the ship with exactness. Since Captain Collinson's Survey of 1842 Block House and Bush Islands have increased much in size, the latter extends at least a mile to the eastward of its given position on the chart, so, that in taking bearings the most prominent parts should be observed.

When about  $2\frac{1}{2}$  miles from Paoushan Point, with a good glass the turning mark for the south bank may be seen, but it is difficult for strangers to discover; except having it first pointed out to them; it is a small pagoda (showing a little above a clump of trees on the south side of the city) in one with a pole with a square board on it placed on the beach. This mark is kept on, or the Pagoda a little open to the northward of the Pole, until the mark for leading over the Bar into Woosung River, which is a beacon kept on between two joss poles and is placed on the beach just outside Fort A. Judgment must direct when to keep away, so as not to approach the west shore too close.

The opium ships at Woosung are moored so as just to swing clear of the east bank.

There are many places in which the water has shoaled since the last survey: there is a patch with  $2\frac{1}{4}$  fathoms at half flood, Gutzlaff Island bearing N. by W.  $13\frac{1}{2}$  miles.

The water is altogether less both on Yangtskeang and Woosung Bars, and there is another bar formed in the second reach of Woosung River at the commencement of the lower middle ground which has only 2 fathoms on it at low water spring tides, so that vessels drawing above 12 feet are obliged to wait until it has flowed sufficiently to take them over, but when the ships have fairly swung at Woosung, the water has risen on this bar nearly 2 feet. In the Channel of this reach the flood stream is not felt at the surface until the tide has one third made. Beyond the upper extremity of the middle ground there is another bank, gathering near the shore on the east side of the river below Half-way Point, with not more than  $2\frac{1}{2}$  fathoms at low water where it is marked  $4\frac{1}{2}$  fathoms on the Chart, the deeper water is more on the west side.

In going up Woosung river with a flood tide, great caution should be used in passing the creeks, as the in-draught is strong and small banks are formed at their mouths.

At about  $1\frac{1}{2}$  cables length from the stream, abreast of the Consulate Flagstaff, at Shanghae, there is a bank formed by the sunken wreck of a vessel; the best anchorage is above the Consulate Wharf.

The highest tides appear to be on the third day after the full and change of the moon.

G. B. F. SWAIN,  
Acting Master,

31st December 1850. H.M.Sloop, Pilot.

A Table showing the Direction of the Ship's Head at different Times of Tide at the Mouth of the Yangtskeang.

| Hours. | Direction of Ship's Head. | Depth of Water. | Wind and Weather. | Remarks. |
|--------|---------------------------|-----------------|-------------------|----------|
| 1      | N.                        | 3½              |                   |          |
| 2      | N. by E.                  | 3½              |                   |          |
| 3      | N.N.E.                    | 3½              |                   |          |
| 4      | N.E. by N.                | 3½              | N. 5 b. c.        |          |
| 5      | N.E.                      | 4               |                   |          |
| 6      | E.N.E.                    | 4½              | N.N.E. 5 b. c.    |          |
| 7      | E.N.E.                    | 4½              |                   |          |
| 8      | E.N.E.                    | 4½              |                   |          |
| 9      | S.S.E. ½ E.               | 4½              | N.E. 7.           |          |
| 10     | W.                        | 4               |                   |          |
| 11     | W.                        | 3½              |                   |          |
| 12     | N.W.                      | 3½              |                   |          |
| 1      | N.W. ½ W.                 | 3½              | N.N.E. 7.         |          |
| 2      |                           | 3½              |                   |          |
| 3      | N.W.                      | 3½              |                   |          |
| 4      | N.N.E.                    | 3½              |                   |          |
| 5      | N.E. by E.                | 3½              | E.N.E. 5.         |          |
| 6      | N.E.                      | 3½              |                   |          |
| 7      | E. by N.                  | 3½              |                   |          |
| 8      |                           | 3½              |                   |          |
| 9      | S.E. by S.                | 3½              | NN. E.            |          |
| 10     | N.W.                      | 3½              |                   |          |
| 11     | N.N.W.                    | 3½              |                   |          |
| 12     | N.W.                      | 3               |                   |          |
| 1      | N.N.E.                    |                 |                   |          |
| 2      | N.N.W.                    |                 |                   |          |
| 3      | N.N.E.                    |                 |                   |          |
| 4      |                           |                 |                   |          |
| 5      | E.N.E.                    |                 |                   |          |
| 6      |                           |                 |                   |          |
| 7      | E. by N.                  |                 |                   |          |
| 8      | E.S.E.                    |                 |                   |          |
| 9      | S.E. by E.                |                 |                   |          |
| 10     |                           |                 |                   |          |
| 11     |                           |                 |                   |          |
| 12     |                           |                 |                   |          |
| 1      |                           |                 |                   |          |
| 2      |                           |                 |                   |          |
| 3      |                           |                 |                   |          |
| 4      | Under-weigh.              |                 |                   |          |
| 5      |                           |                 |                   |          |
| 6      |                           |                 |                   |          |
| 7      |                           |                 |                   |          |
| 8      |                           |                 |                   |          |
| 9      |                           |                 |                   |          |
| 10     |                           |                 |                   |          |
| 11     |                           |                 |                   |          |
| 12     |                           |                 |                   |          |

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A Table showing the Direction of the Ship's Head at different Times of Tide at the Mouth of the Yangtscheang—*continued.*

| Hours. | Direction of Ship's Head. | Depth of Water. | Wind and Weather. | Remarks.                               |
|--------|---------------------------|-----------------|-------------------|--|
| 1      |                           |                 |                   | 1st February 1850.                     |
| 2      |                           |                 |                   | At anchor, Gutzlaff S. b. E.           |
| 3      |                           |                 |                   | High land of Peenchowas                |
| 4      |                           |                 |                   | S.E b. S.                              |
| 5      |                           |                 |                   | 2d February 1850.                      |
| 6      |                           |                 |                   | Calculated time of high                |
| 7      | W.N.W.                    | 4 $\frac{3}{4}$ | S. 4 b. c.        | water 2 <sup>h.</sup>                  |
| 8      |                           | 4 $\frac{3}{4}$ |                   |  |
| 9      | N.W. by W.                | 4 $\frac{3}{4}$ |                   |  |
| 10     | E.                        | 3 $\frac{1}{2}$ |                   |  |
| 11     | S.E. by E.                | 3 $\frac{1}{2}$ |                   |  |
| 12     | S.E.                      | 4 $\frac{1}{4}$ |                   |  |
| 1      | S.E. by S.                | 4 $\frac{1}{2}$ | A.M.              |  |
| 2      | S. by W.                  | 5               |                   |  |
| 3      | S.W. by S.                | 5               | S. by E. 1, b.c.  |  |
| 4      |                           | 5               |                   |  |
| 5      | N.W. by W.                | 5               |                   |  |
| 6      |                           | 4 $\frac{3}{4}$ |                   |  |
| 7      |                           | 4 $\frac{3}{4}$ |                   |  |
| 8      |                           | 3 $\frac{3}{4}$ |                   |  |
| 9      |                           |                 |                   |  |
| 10     |                           |                 |                   |  |
| 11     |                           |                 |                   |  |
| 12     |                           |                 |                   |  |
| 1      | W. by N.                  | 4 $\frac{3}{4}$ | N. by W. 8.o.c.q  | 8th May 1850.                          |
| 2      | N.N.W.                    | 4 $\frac{1}{2}$ |                   | At anchor on the south                 |
| 3      | N.                        | 4 $\frac{1}{2}$ |                   | bank, Gutzlaff S. $\frac{3}{4}$ E. 15  |
| 4      | N. by E.                  | 4 $\frac{1}{2}$ |                   | miles.                                 |
| 5      | N. by E. $\frac{1}{2}$ E. | 4               |                   | Calculated time of high                |
| 6      |                           | 4 $\frac{3}{4}$ |                   | water 9 <sup>h.</sup> 11 <sup>m.</sup> |
| 7      |                           | 5               |                   |  |
| 8      | N.N.E. $\frac{1}{2}$ E.   | 5 $\frac{1}{4}$ |                   |  |
| 9      |                           | 5 $\frac{1}{4}$ |                   |  |
| 10     | N. by E.                  | 5 $\frac{1}{2}$ |                   |  |
| 11     | N. by W.                  | 5 $\frac{1}{4}$ |                   |  |
| 12     | N.N.W.                    | 5               |                   |  |
| 1      | N. by W.                  | 4 $\frac{3}{4}$ | North 6.b.c.q.    |  |
| 2      |                           | 4 $\frac{1}{2}$ |                   |  |
| 3      |                           | 4 $\frac{1}{2}$ |                   |  |
| 4      | N. by E.                  | 4 $\frac{1}{2}$ | N. by E.          |  |
| 5      | N.E. $\frac{1}{2}$ N.     | 4 $\frac{1}{2}$ |                   |  |
| 6      | N.E.                      | 5               | N.N.E.            |  |
| 7      | N.E. by E.                | 5 $\frac{1}{4}$ |                   |  |
| 8      |                           | 5 $\frac{1}{2}$ |                   |  |
| 9      | E.N.E.                    | 5 $\frac{1}{2}$ |                   |  |
| 10     | S.E.                      | 5 $\frac{1}{4}$ | W.N.W. 4.         |  |
| 11     | S.W.                      | 5 $\frac{1}{4}$ |                   |  |
| 12     | W.                        | 5               |                   |  |

A Table showing the Direction of the Ship's Head at different Times of Tide at the Mouth of the Yangtsekeang—*continued.*

| Hours. | Direction of Ship's Head. | Depth of Water. | Wind and Weather. | Remarks.   |
|--------|---------------------------|-----------------|-------------------|--|
| 1      | W. $\frac{1}{2}$ S.       | 4 $\frac{1}{2}$ | W.N.W.            |  |
| 2      | W. $\frac{1}{2}$ S.       | 5               | 6. b. c. m.       | 9th May 1850. At anchor, Gutzlaff, S. $\frac{3}{4}$ E. 15 miles.   |
| 3      | W.N.W.                    | 4 $\frac{1}{2}$ |                   |  |
| 4      | N.W. by N.                | 4               | N.W.              |  |
| 5      | N.N.E.                    | 5 $\frac{1}{2}$ |                   |  |
| 6      | N.E.                      | 4 $\frac{3}{4}$ |                   |  |
| 7      | E.N.E.                    | 5               |                   |  |
| 8      | E. by N.                  | 5 $\frac{1}{2}$ | W.N.W.            |  |
| 9      | E. by S.                  | 5 $\frac{1}{2}$ |                   |  |
| 10     |                           |                 |                   |  |
| 11     | Underweigh.               |                 |                   |  |
| 12     |                           |                 |                   |  |
| 1      | W.                        | 4               | N.W. 2. b. c.     |  |
| 2      | W.N.W. $\frac{3}{4}$ W.   | 3 $\frac{3}{4}$ | N.                | At anchor in the fair-way. Gutzlaff, S. $\frac{1}{2}$ E. 19 miles. |
| 3      | N.W.                      | 3 $\frac{1}{2}$ |                   | High water at 10 <sup>h</sup> .                                    |
| 4      | N.W. $\frac{1}{2}$ N.     | 3               | N. by E. 1. b. c. |  |
| 5      | N.                        | 3 $\frac{1}{4}$ | Calm.             |  |
| 6      | N. $\frac{1}{2}$ E.       | 4               |                   |  |
| 7      | E.                        | 4 $\frac{3}{4}$ |                   |  |
| 8      | S.E. by E.                | 5               | S.E. 1.           |  |
| 9      | S.E. $\frac{1}{2}$ S.     | 5 $\frac{1}{2}$ |                   |  |
| 10     | S. by W.                  | 5 $\frac{1}{2}$ |                   |  |
| 11     | S.S.W.                    | 5 $\frac{1}{2}$ |                   |  |
| 12     | S.W. $\frac{1}{2}$ W.     | 5 $\frac{1}{2}$ | South 1. b. c.    |  |
| 1      | W. by S.                  | 5               | S. 1. b. c.       | 10th May 1850.   |
| 2      | W. by N.                  | 4 $\frac{1}{2}$ |                   |  |
| 3      | W.N.W.                    | 4 $\frac{1}{2}$ |                   |  |
| 4      | N.W. $\frac{1}{2}$ W.     | 4 $\frac{1}{4}$ |                   |  |
| 5      | N.W. $\frac{1}{2}$ N.     | 4               |                   |  |
| 6      |                           |                 |                   |  |
| 7      |                           |                 |                   |  |
| 8      |                           |                 |                   |  |
| 9      |                           |                 |                   |  |
| 10     |                           |                 |                   |  |
| 11     |                           |                 |                   |  |
| 12     |                           |                 |                   |  |
| 1      |                           |                 |                   |  |
| 2      |                           |                 |                   |  |
| 3      |                           |                 |                   |  |
| 4      |                           |                 |                   |  |
| 5      |                           |                 |                   |  |
| 6      |                           |                 |                   |  |
| 7      |                           |                 |                   |  |
| 8      |                           |                 |                   |  |
| 9      |                           |                 |                   |  |
| 10     |                           |                 |                   |  |
| 11     |                           |                 |                   |  |
| 12     |                           |                 |                   |  |
|        | Underweigh.               |                 |                   |  |

A Table showing the Direction of the Ship's Head at different Times of Tide at the Mouth of the Yangtsekeang—*continued*.

| Hours. | Direction of Ship's Head.   | Depth of Water. | Wind and Weather.    | Remarks.   |
|--------|---|-----------------|----------------------|--|
| 1      | P.M.<br>At anchor.  |                 |                      | 16th August 1850.<br>At anchor, Gutzlaff S. $\frac{1}{2}$ E.<br>20 miles.<br>High water, as per Nautical Almanac, 7 <sup>h</sup> . 14 <sup>m</sup> . |
| 2      |   |                 |                      |  |
| 3      |   |                 |                      |  |
| 4      |   |                 |                      |  |
| 5      |   |                 |                      |  |
| 6      |   |                 |                      |  |
| 7      |   | 4 $\frac{1}{2}$ | S. 3. b. c.          |  |
| 8      |   | 4 $\frac{1}{4}$ |                      |  |
| 9      |   | 4 $\frac{1}{2}$ |                      |  |
| 10     |   |                 |                      |  |
| 11     |   |                 |                      |  |
| 12     |   |                 |                      |  |
| 1      | Underweigh.<br>S. W. by W.<br>W.N.W. $\frac{1}{2}$ W.<br>N.W.   | 4 $\frac{1}{2}$ | S.S.W. 3. b. c.      | 10th and 11th Nov. 1850.<br>At anchor, Gutzlaff S.S.E.<br>21 $\frac{1}{2}$ miles.<br>Calculated time of high water 3 <sup>h</sup> 37 <sup>m</sup> .  |
| 2      |   | 4               |                      |  |
| 3      |   | 4               |                      |  |
| 4      |   | 4               |                      |  |
| 5      |   | 4               |                      |  |
| 6      |   | 4               |                      |  |
| 7      |   | 4               |                      |  |
| 8      |   | 4               |                      |  |
| 9      |   | 4               |                      |  |
| 10     |   | 4               |                      |  |
| 11     |   | 4               |                      |  |
| 12     |   |                 |                      |  |
| 1      | Underweigh.<br>N.E. $\frac{1}{2}$ E.<br>E. by N.<br>N.E. by E.<br>N. by E. $\frac{1}{2}$ E.<br>N. $\frac{1}{2}$ E.<br>N. $\frac{1}{2}$ E.<br>N.N.W.<br>N. by W. | 4 $\frac{1}{2}$ | N. by E. 7. b. c. q. |  |
| 2      |   | 4 $\frac{1}{4}$ |                      |  |
| 3      |   | 4 $\frac{1}{4}$ |                      |  |
| 4      |   | 4 $\frac{1}{4}$ |                      |  |
| 5      |   | 4 $\frac{1}{4}$ |                      |  |
| 6      |   | 4 $\frac{1}{4}$ |                      |  |
| 7      |   | 4 $\frac{1}{4}$ |                      |  |
| 8      |   | 4 $\frac{1}{4}$ |                      |  |
| 9      |   | 4 $\frac{1}{4}$ |                      |  |
| 10     |   |                 |                      |  |
| 11     |   |                 |                      |  |
| 12     |   |                 |                      |  |

A Table showing the Direction of the Ship's Head at different Times of Tide at the Mouth of the Yangtsekeang—*continued.*

| Hours. | Direction of Ship's Head. | Depth of Water. | Wind and Weather. | Remarks.                                 |
|--------|---------------------------|-----------------|-------------------|--|
| 1      |                           |                 |                   | 4th and 5th December 1850.               |
| 2      |                           |                 |                   | At anchor, Gutzlaff, S. b. E.            |
| 3      |                           |                 |                   | 20 miles.                                |
| 4      | N.W. by W.                | 4 $\frac{1}{2}$ | N.N.W. 3. b. c.   | Calculated time of high                  |
| 5      | N.W.                      | 3 $\frac{1}{2}$ |                   | water 12 o'clock.                        |
| 6      | N.W. by W.                | 3 $\frac{1}{2}$ |                   |  |
| 7      | N.W. $\frac{1}{4}$ W.     | 3               |                   |  |
| 8      | N.E.                      | 3 $\frac{1}{2}$ |                   |  |
| 9      | E.N.E.                    | 3 $\frac{1}{2}$ |                   |  |
| 10     | E.                        | 3 $\frac{1}{2}$ | N.N.W. 2. b. c.   |  |
| 11     | E.S.E.                    | 4 $\frac{1}{2}$ |                   |  |
| 12     | S.E.                      | 4 $\frac{1}{2}$ |                   |  |
| 1      | S.W. by W.                | 4 $\frac{1}{2}$ |                   |  |
| 2      | W. $\frac{1}{4}$ N.       | 4 $\frac{1}{2}$ |                   |  |
| 3      | W. by N.                  | 4               |                   |  |
| 4      | N.W. by W.                | 3 $\frac{1}{2}$ |                   |  |
| 5      | N.W. $\frac{1}{4}$ W.     | 4 $\frac{1}{2}$ |                   |  |
| 6      | N.W.                      | 4               |                   |  |
| 7      | N.W. by N.                | 3 $\frac{1}{2}$ |                   |  |
| 8      |                           |                 |                   |  |
| 9      |                           |                 |                   |  |
| 10     |                           |                 |                   |  |
| 11     |                           |                 |                   |  |
| 12     |                           |                 |                   |  |
| 1      |                           |                 |                   | 10th and 11th Jan. 1851.                 |
| 2      |                           |                 |                   | At anchor, Gutzlaff, S. b. E.            |
| 3      |                           |                 |                   | $\frac{1}{2}$ E. 12 miles.               |
| 4      |                           |                 |                   | Calculated time of high                  |
| 5      |                           |                 |                   | water 4 <sup>h</sup> . 50 <sup>m</sup> . |
| 6      | S.W.                      | 4 $\frac{1}{2}$ | S. by E. 2. b. c. |  |
| 7      | W.S.W.                    | 4               |                   |  |
| 8      | W.                        | 3 $\frac{1}{2}$ |                   |  |
| 9      | N.W. by N.                | 3 $\frac{1}{2}$ |                   |  |
| 10     | N.W. by W.                | 3 $\frac{1}{2}$ | S.S.E. 3. c.      |  |
| 11     | N. by W. $\frac{1}{4}$ W. | 3               |                   |  |
| 12     | N.                        | 3 $\frac{1}{2}$ |                   |  |
| 1      | N.N.E.                    | 3 $\frac{1}{2}$ | W. 3. b.          |  |
| 2      | E. by N.                  | 3 $\frac{1}{2}$ |                   |  |
| 3      | E.S.E.                    | 4               |                   |  |
| 4      | S.E.                      | 4 $\frac{1}{2}$ |                   |  |
| 5      | S. by E.                  | 4 $\frac{1}{2}$ | W. 5. b. c. m.    |  |
| 6      | S.S.W.                    | 4 $\frac{1}{2}$ |                   |  |
| 7      | S.W. by W.                | 4 $\frac{1}{2}$ |                   |  |
| 8      |                           |                 |                   |  |
| 9      |                           |                 |                   |  |
| 10     |                           |                 |                   |  |
| 11     |                           |                 |                   |  |
| 12     |                           |                 |                   |  |

G. B. F. SWAIN,

Master Acting,

H. M. Sloop Pilot.

31st January 1851.

PROCEEDINGS of Her Majesty's Steam Sloop *Styx*, from the 15th of June to the 7th of July 1854, together with Remarks and Directions for the Navigation of the Yang-tsekeang River from Woosung to Nanking. Frederick Woolcombe, Commander.

321. On the 15th of June 1854, at 4 P.M., weighed from the anchorage (with the marks on) off the entrance of the Woosung river. Steam up in two boilers, and proceeded up the Yang-tsekeang, for Nanking, H.M.S. *Rattler* in company ahead (strong flood), keeping from  $1\frac{1}{2}$  to 2 miles off shore. At 5.20 observed *Rattler* to be on shore; kept more inshore and approached her from the southward into 4 fathoms, about  $2\frac{1}{2}$  cables' lengths off; on sounding in the gig the depth from this direction suddenly decreased to  $1\frac{1}{2}$  fathoms.

The *Rattler* had grounded about the position of the Knoll, marked in Kellett and Collinson's chart,  $2\frac{1}{4}$  fathoms, 9 miles above Paoushan Point.

This bank must be dry at low water springs. To avoid it, close the shore to 1 mile. At 3 A.M. of the 16th, the *Rattler* floated at half flood. 5.20 A.M. Weighed, *Rattler* in company, that vessel having passed round the N.W. end of the shoal, keeping about  $1\frac{1}{2}$  miles off shore. When passing the Blonde shoal the depth decreased to  $3\frac{1}{2}$  fathoms. When Harvey Point bore N.  $\frac{1}{2}$  W., steered directly for it; about  $1\frac{1}{2}$  miles to the southward of the point, shoaled to  $3\frac{1}{2}$  fathoms; the soundings here were very irregular. Passed the point about half a mile off, and continued on to the northward until it bore S.E. by E.; then shaped a course W.N.W. until the single tree on the south bank, which is easily distinguished, bore south; then W.  $\frac{3}{4}$  N. to pass  $1\frac{1}{4}$  miles off Plover Point; a spit, nearly dry, extends about  $2\frac{1}{2}$  miles off the south shore; when abreast of the shoalest part, the Great Bush bore south. Another spit, partly dry, extends about  $1\frac{1}{4}$  miles from the shore to the eastward of Plover Point. Having passed Plover Point, closed the shore to a mile or a mile and a half, bringing Fooshan East Hill to bear S.  $\frac{1}{2}$  E., and proceeded to the northward, keeping it on that bearing. At 3.40 P.M., the *Ratiler*, about 2 miles off, one point on the port bow, signalized 2 fathoms; hauled half a point to the eastward, but having shoaled to 3 fathoms, came to at 3.55 P.M. At 4.20 weighed, and proceeded to the N.N.E.

about half a mile, when the *Styx* took the ground forward. Found the deepest water to the westward, but not more than  $3\frac{1}{2}$  fathoms, when, fearing lest the vessel should back on to the shoal again, the anchor was let go. Rattler at anchor under the north shore, bearing N. by E. Rise and fall of tide 9 feet.

17th June. After sounding, found a passage about 2 miles N.N.E. in 3 and  $3\frac{1}{2}$  fathoms, the depth increasing gradually to 6 fathoms; at 1.30 P.M. weighed and steamed to the north eastward (with a boat ahead) for about 2 miles in 3 and  $3\frac{1}{2}$  fathoms, when the depth increased to 5 and 6 fathoms; kept more northerly, and approached the north shore to half a mile; then followed the bend of the river from half to one mile off the north bank, with no bottom at 9 fathoms. After passing the east end of a low island to the southward, not marked in the chart, steered W.  $\frac{1}{4}$  N., passing another low island close in with the north shore (which has evidently lately grown up). At 7.30 P.M. anchored in 10 fathoms, about 2 miles off the north shore, Keasham Point bearing S.  $\frac{1}{2}$  W. The *Styx* experienced a strong ebb all night, so that the flood tide may be considered to have no existence 10 or 15 miles below this position.

18th of June. At 5.20 A.M. weighed, Rattler in company, and kept about  $1\frac{1}{2}$  miles off the north shore, until Hwangshan Hill bore S.W. by W.; then steered directly for it, approaching the south shore to 2 cables' lengths. Found Keashham Point an excellent mark for this part of the river; it is very remarkable; it rises abruptly to a height of 80 or 90 feet, may be seen a considerable distance, and makes like an island.

The promontory of Yinsha extends out farther than marked in the Chart, the extreme point bearing due south from Kooshan Hill. Kept along the high land off the south shore at about  $2\frac{1}{2}$  cables' lengths, right through the Pass, until the Kiangjin Pagoda opened, then hauled over to the north shore, keeping along it at the distance of half a mile, until approaching the point abreast of the east end of Starling Island, giving it a berth of about 2 miles, to avoid the flat extending from it, marked in the chart. On opening the land to the northward of this point, hauled right in for the north shore to half a cable's length. Passing over that space where no sound-

ings are marked in the chart, had one cast of 3 fathoms, but the depth gradually increased to 4 and 5 fathoms; and on bringing the north end of Starling Island to the southward of west, the depth increased to 7 and 9 fathoms.

An island marked in the chart about 1 mile from the north shore, with Hwangshan Hill bearing W.S.W.  $\frac{1}{2}$  W., does not exist. Proceeded to the northward, keeping the north bank close on board, the soundings agreeing with the chart. Twelve miles to the northward the shoal marked a quarter fathom has grown into an island about 10 feet high of the same shape and position. Passed between this island and the north shore, the depths varying from 9 fathoms to no bottom. After passing this island, a mid-channel course will carry a ship up to Chinkeangfoo, avoiding a rock with a beacon (painted red) on it, about 2 miles above the north entrance of the Shagaou River, Chooshan Pagoda bearing west. The eddies about this part are very strong. Passed to the southward of Seaousha, Kaoukeasha, and Silver Islands. In rounding the point just below Silver Island, found only  $5\frac{1}{2}$  fathoms, where 15 fathoms is marked in the chart. At 7.30 P.M. anchored off Chinkeangfoo in  $6\frac{1}{2}$  fathoms. Chinkeangfoo Pagoda S. by E.; Golden Island Pagoda, W.S.W.  $\frac{1}{2}$  W.; Silver Island (centre) E. by N.  $\frac{1}{2}$  N.; current off Chinkeangfoo about  $2\frac{1}{2}$  knots.

20th of June. 7.20 A.M. Weighed. Golden Island, on which stands a pagoda, is much nearer the south shore than appears in the chart. After passing Golden Island, approach the north bank to 50 yards, to pass inside a rock about a mile above the island. The north bank is here very steep, 9 and 10 fathoms within the distance above named. After passing the rock, which does not show, kept a mid-channel course, taking the passage to the southward of Pihsinchou Island. Closed the north shore a little, to avoid a flat extending off the north side of Tsaouhea Island, and at 7 P.M. anchored close under the north bank, in 8 fathoms, off Nanking. Theodolite Point E.  $\frac{3}{4}$  N., Pingshan Pagoda N.  $\frac{5}{4}$  W., H.M.S. Rattler astern 1 cable's length, current about 3 knots.

24th of June. Found the creek between Tsaouhea Island and the main clear of junks, and the soundings to vary from  $\frac{1}{10}$  to 5 fathoms in mid-channel; the latter depth was found about 1 mile from the north entrance of the creek.

30th of June. 8 A.M. Weighed, and proceeded down the river, Rattler in company, keeping a mid-channel course. 11.40 A.M. Anchored in  $12\frac{1}{2}$  fathoms, about 40 yards off the north bank of the river, Eching Pagoda N.E. Found it necessary to go very close under the bank before shoaling to  $12\frac{1}{2}$  fathoms. At 2.30 P.M. shifted berth 2 miles lower down, and anchored in  $5\frac{1}{4}$  fathoms, 2 cables' lengths off the north bank, Eching Pagoda N. by E.

1st July. 12.5. P.M. Weighed, taking the passage to the southward of Pthsuchow Island. At 1.25 P.M. anchored about 2 miles above Golden Island (the pagoda bearing E.S.E.  $\frac{1}{2}$  E.) in 6 fathoms. The Rattler's gig succeeded in finding the sunken rock, which is placed close to the north bank in the chart: it has 10 feet on it, with 6 fathoms a boat's length all round; it lies about mid-channel, a little less than a mile above Golden Island. The channel to the northward of the rock has evidently been much widened, by the washing away of the north bank since the date of the chart; although the rock appears to be about the same actual position, it is now nearly mid-channel. This was verified by the mandarin at Eching, who stated that a great portion of the north bank had been swept away a few years back.

2d July. 5.40 A.M. Weighed, and passed to the northward of the sunken rock, about a cable's length from the north bank, in 9 fathoms. At 6.20 A.M. anchored off Chinkeangfoo, in 7 fathoms, Golden Island Pagoda W.S.W., Silver Island centre E.N.E.  $\frac{1}{2}$  E., Chinkeangfoo Pagoda S.E. by S.

3d of July. At 11 A.M. weighed, in company with the Rattler, keeping in the upward track. At 6.10 P.M. observed a shoal, partly dry, 2 cables' lengths to the southward, where  $1\frac{1}{2}$  fathoms is marked in the chart; Kooshan Hill bearing N.W. by W.  $\frac{1}{2}$  W., Keashan Point E.  $\frac{1}{2}$  S. 6.25. Anchored in 8 fathoms, with Kooshan Hill N.W. by W.  $\frac{3}{4}$  W., Keashan Point E.  $\frac{3}{4}$  S.

3d of July. 4.20 A.M. Weighed, and proceeded down the river, following the former track. Approached the low island mentioned in going up, near the north bank, to  $1\frac{1}{2}$  cables' length, having 10 fathoms, until Fooshan East Hill bore S. by W.  $\frac{1}{2}$  W.; then hauled to the southward, keeping that bearing on. At 7.10 A.M., the Rattler having shoaled to 3 fathoms, anchored in  $4\frac{1}{2}$  fathoms, Langshan Pagoda N.E. by E.  $\frac{1}{2}$  E. Fooshan East

Hill, S. by W.  $\frac{3}{4}$  W. At 3.10 weighed, and brought Fooshan West Hill in one with the western peak of a range of mountains in the interior, and hauled to the southward; keeping this mark on, approached the south bank to about 2 miles, then to the S.E.-ward into the former track. At 4.35 anchored in  $9\frac{1}{2}$  fathoms, Langshan Pagoda N.N.E.  $\frac{1}{2}$  E., Fooshan East Hill W.S.W. The soundings over the Langshan Crossing have undergone great change since the survey. The water is shoaler in the whole vicinity than appears on the chart. In one part there was found only  $1\frac{1}{2}$  fathoms at low water. The positions of Lanshan Pagoda and the Fooshan Hills are either the one or both incorrectly marked, the bearings when at anchor as above placed the Styx upwards of two miles from her actual position. The following directions will insure a depth of not less than 3 fathoms at low water, over the Langshan Crossing. In coming down keep the north bank half a mile off, until Fooshan East Hill bears S. by W.  $\frac{1}{2}$  W. Keep this bearing on until Langshan Pagoda bears E.N.E.; then haul to the westward, keeping it on this bearing until the western of the three hills of Fooshan comes on with the western peak of a range of mountains in the interior bearing south; haul to the southward, keeping these marks on, and approach the south shore to 2 miles; then steer more easterly, and close the shore to one mile and a half.

6th July. 9.45 A.M. Weighed, in company with the Rattler, keeping in the upward track. On approaching Harvey Point the Rattler grounded, she having kept too much to the northward. Approached her from the southward to a cable's length, and anchored in 3 fathoms, with the following bearings:—Single Tree W.  $\frac{3}{4}$  S., south extreme of Tsungning S.S.E.  $\frac{1}{2}$  E., north extreme of Tsungning E.N.E., Shangshan Pagoda N.W.  $\frac{1}{2}$  W.

7th July. At 4.50 A.M. weighed, in company with the Rattler, and proceeded in the former track. About  $2\frac{1}{2}$  miles to the southward of Harvey Point, shoaled to 3 fathoms; soundings very irregular. On passing the shoal where the Rattler grounded in coming up, closed the shore to about a mile. At 7 A.M. Rattler stopped, and signalized 4 fathoms, 2 cables' lengths ahead. Stopped the engines, touched the ground, backed astern, and anchored in  $2\frac{1}{2}$  fathoms. Found the ship had touched a small knoll, with  $2\frac{1}{2}$  fathoms on it, having 5 fathoms

each side of it. The north extreme of Bush Island E.  $\frac{1}{2}$  S. 7.20 A.M. Weighed, and proceeded to the entrance of the Woosung River, the depth increasing immediately to 5 and 7 fathoms. At 9.5 A.M. passed Woosung. At 11.5 A.M. anchored off Shanghae in  $4\frac{1}{2}$  fathoms, British Consul's flag-staff N.W. by W.\*

H. W. INGLIS, Acting Master.

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\* These proceedings are given for the purpose of showing the alteration of the river, the chart of which, it will be seen, cannot always be depended upon.

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## CHAPTER V.

WINDS AND WEATHER. TIDES AND CURRENTS. GENERAL  
REMARKS ON MAKING PASSAGES.

*S. W. Monsoon.* 322. The S.W. monsoon generally commences in the northern part of the China Sea, about the middle or end of April, and terminates about the first week in September; the breezes are not so constant from one quarter of the compass, as they are in the other monsoon; and land and sea breezes occur near to the coast, so that there is nothing like the difficulty in getting to the southward against this monsoon, as there is in going to the northward against the other.

*N.E. Monsoon.* The north-east monsoon does not set in, it comes down without warning, and with a violence that has exposed several vessels to great danger; therefore when the monsoon is about to change, they should avoid anchoring in exposed positions, and weigh instantly if caught, as the swell rises with such rapidity as to cause a difficulty in getting their anchor. The first burst of the monsoon frequently lasts a week or 10 days, but the accompanying abstract of meteorological registers will show the navigator what may be expected, better than any other explanation.

*Meteorological Registers.* 323. The first table contains observations made at Tinghae in Chusan from August 1840 to February 1841.

The second, a register kept by Mr. Jones, master of the Mahamoodie, while at anchor under Wooseu at Amoy, from July to November 1844.

The third is a journal kept at the dispensary, Woosung, by Dr. Murray, throughout a period of three years, comprising a most useful addition to our meteorological data in these seas.

A fourth table has been added, containing the result of observations at Macao.

By these tables it will be seen that the barometer differs as much in some years as an inch, during the two monsoons. Thus the mean barometer from October 1847, to March 1848, is 30.33. While from April to September 1848 it is only 29.53.

Strong gales of wind are frequently experienced in the N.E. *Strong gales with a high barometer; low barometer indicates a southerly wind.* monsoon with a rising barometer ; and a low barometer in the same season will generally be found to indicate a southerly wind.

During the height of the N.E. monsoon the wind at night *Wind at night draws off the land.* will be found frequently to draw off the land, affording an opportunity for a vessel to make a good board.

324. The typhoon months on the coast of China are from *Typhoon Limits.* June to November. They do not extend into the Formosa

Channel, there being no record as yet of any having reached Amoy, but they are found to the north of Formosa ; one having visited the Chusan Archipelago in 1843, much to the astonishment of its inhabitants, who averred that such a thing had not occurred for 50 years. Some violent storms have also visited Shanghae, but it is yet doubtful whether these are Cyclones or not. Dr. J. I. Murray, of Woosung, has sent an account of a typhoon which visited Shanghae 19th July, 1848. To the eastward of Formosa they extend as far as the Bonin Islands ; but the high mountain chain which runs nearly the whole length of the former island, and rises from 5,000 to 10,000 feet above the sea, must divert, not only their curve, but their direction. It is however curious to note that, on 1st September, 1848, a typhoon, in which 5 ships were driven on shore, and 6 dismasted, occurred at Hong Kong, the barometer falling to 28.92 ; while Dr. Murray notices at Woosung, in his journal, that on the 4th a trifling whirlwind, causing the water over which it passed to boil and foam, passed across the river from the N.E., conveying as it were a whisper of what had occurred to the southward.

*Instance of a typhoon at Hong Kong being felt at Woosung.*

There is however now considerably less danger in meeting these furious tempests, owing to the skill and research of Mr. W. C. Redfield, Colonel Sir William Reid, Mr. Henry Piddington, and others who have collated a vast number of facts bearing upon the subject. It is found that their progress is governed by a general law, and consequently the vortex can be avoided, and the vessel's safety assured by attention to their well-known rule ; the practical rule for which is this : Turn *Rule to avoid the vortex.* your back to the wind ; then, if the vessel is in north latitude, the vortex of the hurricane will be on your left but if in south latitude, it will be on your right, in both cases, at a right angle from the direction in which you are looking.

In the northern part of the China Sea, a low barometer for several days previous, an ugly threatening appearance, and heavy swell, will give sufficient warning, provided it be taken, and will enable ships to get sufficient sea-room so as to avoid the centre, or to secure safe anchorage.

*Typhoon  
harbours.*

325. The following is a list of the harbours where ships will lie secure in a typhoon or veering gale:—Tamtoo, Mirs Bay Tysami Inlet (for 12 feet draught), Namoa Island (opposite Stewarts House) Tongsang, Amoy, Quemoy, Pescadore Islands (inner harbour), Chinchew (within the boot sand), Hungwha Sound, southern entrance to the Haetan Straits, Pihquan Harbour, Bullock Harbour, Kelung Harbour Formosa, Chusan Archipelago, Tinghae outer and inner harbours, Chinkeamun and Chinkeang, Fishers Island and Taoutse on the N.W. side of Kintang.

*Typhoon in  
1844.*

*Mr. Hill's  
journal on  
board the  
Rustumjee  
Cowasjee.*

326. The following account of a typhoon in 1844 will show its progress up the China Sea.

|                             |   |               |    |       |       |   |
|-----------------------------|---|---------------|----|-------|-------|---|
| Ship "Rustumjee Cowasjee."  | 17° 50' N.  | 118° 0' E. :— |    |       |       |   |
| 1st Sept.—Noon.             | Fresh N.E. breezes, with a heavy swell            |               |    |       |       |   |
|                             | small patches of clouds going swiftly to the S.E. |               |    |       |       |   |
| 2d Sept.—Midnight to 4 A.M. | Hard squalls, Bar. Ther.                          |               |    |       |       |   |
|                             | with heavy rain and high sea                      | 29.50         | 86 |       |       |   |
| „ 6 A.M.                    | Weather very threatening ;                        |               |    |       |       |   |
|                             | hove to under M. trysail, head                    |               |    |       |       |   |
|                             | to the eastward                                   | —             | —  | 29.45 | 84    |   |
| „ Noon.                     | Blowing a gale at north                           | —             | —  | 29.40 | 84    |   |
| „ 6 P.M.                    | Severe squalls, with rain                         | —             | —  | 29.40 | 84    |   |
| „ 10 P.M.                   | The like from N.N.W. to                           |               |    |       |       |   |
|                             | N.W. b. N.; high turbulent sea                    | 29.35         | 83 |       |       |   |
| „ Midnight.                 | The like. Lost a quarter-                         |               |    |       |       |   |
|                             | boat  | —             | —  | —     | —     | — |
| 3d Sept.—4 A.M.             | Furious gale at N.N.W.                            | —             | —  | 29.20 | 82    |   |
| „ 8 A.M.                    | Abating; severe gusts from                        |               |    |       |       |   |
|                             | N.W.  | —             | —  | —     | 29.35 | — |
| „ Noon.                     | Strong gale at west; sea in                       |               |    |       |       |   |
|                             | masses  | —             | —  | —     | —     | — |
| „ 8 P.M.                    | 17° 25' N., 118° 35' E. ;                         |               |    |       |       |   |
|                             | bore up   | —             | —  | —     | —     | — |
| „ Midnight.                 | Fresh gale; heavy sea                             |               |    |       |       |   |
|                             | from S.W., with an occasional                     |               |    |       |       |   |
|                             | roller from the N.W.                              | —             | —  | 29.50 | —     | — |

4th Sept.—4 A.M. Strong breezes at S.E.; atmosphere clear - - - 29.65 83  
 Noon. Wind E.N.E.; swell abating 29.80 -  
 "Red Rover." Anchored, with Kedge, with Shalungton bearing N.N.W. 5 miles.

*Mr. M'Murdo's journal on board the Red Rover.*

2d Sept.—Midnight. Calm, with heavy swell from the eastward; dark, threatening appearance.

3d Sept.—1 A.M. Weighed. Squall from N.W.; drizzling rain.

|   |                                       | Barom. |
|---|---------------------------------------|--------|
| „ | 4 A.M. Increasing to a gale at N.N.E. |        |
|   | Reduced to storm sails - - -          | 29.70  |
| „ | Noon. Blowing a whole gale at east -  | 29.50  |
| „ | 2 P.M. Wind E.S.E. - - -              | 29.40  |
| „ | 8 P.M. Wind S.E. - - -                | 29.30  |
| „ | Midnight. Wind S.S.E., moderating -   | 29.50  |

H. M. S. "Plover":—

|                    | Wind.      | Force Weather. | Barom. |
|--------------------|------------|----------------|--------|
| 2d Sept.—Midnight. | East,      | 5 B.C.Q.       | 29.74  |
| 3d Sept.—4 A.M.    | N.E.       | 5 B.C.Q.       | .69    |
| „ 9 A.M.           | N.E.       | 8 O.G.R.M.     | .75    |
| „ Noon.            | N.E.       | 6              | .72    |
| „ 3 P.M.           | North.     | 4 G.M.Q.R.     | .66    |
| „ 6 P.M.           | N.E. b. E. | 7              | .65    |
| „ 9 P.M.           | N.E. b. E. | 8              | .67    |
| „ Midnight.        | East.      | 7              | .67    |
| 4th Sept.—4 A.M.   | E. b. N.   | 7 G.Q.R.       | .67    |
| „ 9 A.M.           | East.      | 8              | .73    |
| „ Noon.            | S.E. b. E. | 8              | .75    |
| „ 3 P.M.           | S.S.E.     | 8              | .77    |
| „ 6 P.M.           | E.S.E.     | 7              | .82    |
| „ 9 P.M.           | E. b. S.   | 6              | .87    |

*H.M.S. Plover at anchor off Baylis Bay, Namoa Island.*

|   | 3 A.M.                      | 9 A.M.                        | Noon.                       | 3 P.M.                               | 9 P.M.                         | Midnight.                           |
|---|-----------------------------|-------------------------------|-----------------------------|--------------------------------------|--------------------------------|-------------------------------------|
| 23 <sup>rd</sup> Sept.<br>Barometer<br>Wind and<br>force -<br>Weather - | 29.82<br>N.N.E. 4<br>b.c.   | 29.88<br>N.N.E. 5<br>b.c.     | 29.87<br>N.E. 3<br>b.c.     | 29.82<br>N.E. 6<br>b.c.              | 29.80<br>N.E. 5<br>b.c.        | 29.81<br>N.E. 5<br>b.c.             |
| 24 <sup>th</sup> Sept.<br>Barometer<br>Wind and<br>force -<br>Weather - | 29.76<br>N.N.E. 7<br>b.c.q. | 29.79<br>N.E. 7<br>b.c.q.     | 29.78<br>N.N.E. 6<br>b.c.q. | 29.72<br>{ N.N.E.<br>6 & 7<br>b.c.q. | 29.78<br>N.E. 5 to 7<br>o.q.r. | 29.80<br>{ N.E.<br>4 to 6<br>o.g.r. |
| 25 <sup>th</sup> Sept.<br>Barometer<br>Wind and<br>force -<br>Weather - | 29.74<br>N.E. 5<br>b.c.     | 29.84<br>E.N.E. 4<br>b.c.q.r. | 29.85<br>S.E. 3<br>b.c.q.   | 29.8<br>E.S.E<br>b.c.                | 29.92<br>North 3<br>b.c.       | 29.93<br>N.E. 3<br>b.c.             |

*Ship Mahamoodie at anchor under Woosieu, Amoy*

This example will show that the Rustamjee went upon the wrong tack; and that as the tempest proceeded to the north, it was dissipated, and lost its Cyclone character.

*Typhoon at Hong Kong and Macao 31st of August 1848, in which five ships were driven on shore and six dismasted.*

## HONG KONG.

## MACAO.

| Hour and Date. | Baro-meter.  | Wind.             | Weather.         | Hour and Date. | Baro-meter. | Wind.  | Weather.  |
|----------------|--|-------------------|------------------|----------------|-------------|--|---|
| Aug. 31st.     | h. m.  | inches.           |                  | Aug. 31st.     | h. m.       | inches.  |   |
|                | 10.0 P.M.  | 29.28             | N.E. - -         |                | 7.0 P.M.    | 29.35  | North. - -  |
|                | 11.0 "   | .24               | N.E. - -         |                | 8.40 "      | .28  | - -   |
|                | 11.50 "  | .10               | N.E. - -         |                | 9.20 "      | .27  | - -   |
|                | 1.0 A.M.   | 28.98             | E.N.E. -         |                | 9.35 "      | .25  | - -   |
|                | 2.0 "  | .94               | E. b. N. -       |                | 9.55 "      | .22  | - -   |
|                | 2.45 "   | .92               | E. b. N. -       |                | 10.45 "     | .19  | - -   |
|                | 3.19 "   | .98               | East Nor-therly. |                | 11.0 "      | .16  | - -   |
|                | 4.0 "  | 29.05             | East - -         |                | 1.15 "      | 28.82  | N.W. - -  |
|                | 5.0 "  | 29.15             | S.E. b. S. -     |                | 2.0 "       | .54  | - -   |
| September 1st. | Longer in-<br>tervals be-<br>tween the<br>squalls. | South<br>Easterly | Moderating.      | September 1st. | 2.45 "      | 38 {   | The wind suddenly calmed<br>and the rain stopped. |
|                |  |                   |                  |                | 3.40 "      | { A breeze from W. and S.; some<br>rain; barometer stationary. |   |
|                |  |                   |                  |                | 3.45 "      | No wind; barometer began to rise.                              |   |
|                |  |                   |                  |                | 4.20 "      | .39 {  | Strong gale;<br>gale increasing,<br>much rain.    |
|                |  |                   |                  |                | 4.25 "      | .47 {  |   |
|                |  |                   |                  |                | 5.0 "       | .70  | - -   |
|                |  |                   |                  |                | 6.0 "       | .93  | S.W. - -  |
|                |  |                   |                  |                | 8.0 "       | 29.20  | S.W. - -  |
|                |  |                   |                  |                | 8.30 "      | .30  | S.W. - -  |
|                |  |                   |                  |                |             |  | Gale mod-<br>erating.                             |

At Cumsingmoon the typhoon commenced at 10h. P.M., the wind being from the north. The barometer fell to 28.48 at daylight on the 1st, when the wind was at its height. At Whampoa 9h. P.M. 31st, blowing fresh with gusts from the eastward, sympiesometer 29.30. At 11h. P.M. sympiesometer 29.20; at 2h. 30m. A.M. 1st sympiesometer 29.0 heavy gusts with much rain, and forked lightning; at 4h. blowing a gale at E.N.E.; at 7h. the wind chopped round to E.S.E., blowing very heavy, sympiesometer 28.90; at 7h. 30m. blowing harder; at 11h. sympiesometer 29.20; at noon 29.30 wind at S.E.; gale abating.

In this case the vortex evidently passed over Macao, affording a corroboration of the rule given before.

DOCTOR J. I. MURRAY's account of the typhoon which visited Woosung on the 20th July 1848.

328. On the evening of the 19th, the barometer already began to manifest a decided tendency downwards; at the same time the sky presented an appearance fully entitling me to enter

the significant letter *u*,\* in my register. A lurid back-ground of a dark copper hue, almost covered by dense black clouds fleeting across with the rapidity of lightning, would of itself have warned any one moderately prudent, of the dangers to come.

1st. Barometrical changes in three different instruments.

| Date.   | Time.      | 1st Bar. | 2d Bar. | 3d Bar. | Wind.        |               |
|---------|------------|----------|---------|---------|--------------|---------------|
|         |            | inches.  | inches. | inches. | Quarter.     | Strength.     |
| July 20 | h. m.      | 28.62    | - -     | 28.90   | E.N.E.       | 9             |
|         | 0.15 P. M. |          |         |         | —            | —             |
| "       | 1.00 "     | - -      | 28.74   | - -     | —            | —             |
| "       | 1.30 "     | - -      | 28.66   | - -     | —            | —             |
| "       | 2.00 "     | - -      | 28.54   | - -     | N.E. b. E.   | 10            |
| "       | 2.10 "     | 28.30    | - -     | 28.65   | —            | —             |
| "       | 2.30 "     | 28.32    | - -     | 28.67   | moderated    | suddenly      |
| "       | 3.00 "     | 28.38    | 28.58   | 28.72   | - -          | 6             |
| "       | 3.30 "     | - -      | - -     | - -     | S.S.E.       | 6             |
| "       | 3.45 "     | 28.45    | - -     | 28.80   | S. - -       | 7             |
| "       | 4.20 "     | - -      | - -     | - -     | S.S.W. -     | 9             |
| "       | 5.00 "     | - -      | 28.94   | - -     | S.S.W. to S. | squalls       |
| "       | 6.00 "     | - -      | 29.05   | - -     | —            | —             |
| "       | 7.00 "     | 28.60    | 29.12   | 29.10   | —            | —             |
| "       | 8.00 "     | 28.92    | 29.29   | 29.24   | S.S.E. -     | heavy squalls |
| "       | 9.00 "     | - -      | 29.30   | - -     | —            | —             |
| "       | 9.45 "     | - -      | 29.35   | - -     | —            | —             |
| 21      | 0.15 A.M.  | - -      | 29.42   | - -     | —            | —             |
| "       | 7.00 "     | - -      | 29.58   | - -     | —            | —             |

2d. Lowest descent of the Mercury during the height of the gale in various Weather-glasses in the fleet.

| Ship's Name.            | Barometer.       | Symplesometer. |
|-------------------------|------------------|----------------|
| Clown - - -             | inches.<br>28.30 | inches.<br>—   |
| Wm. Hughes - - -        | 28.45            | —              |
| <i>Dispensary</i> - - - | 28.51            | 27.55          |
| Snipe - - -             | 28.53            | —              |
| Larpent - - -           | 28.53            | —              |
| Black Dog - - -         | 28.54            | —              |
| Emily Jane - - -        | 28.60            | —              |
| Folkstone - - -         | 28.63            | —              |
| Amazon - - -            | 28.63            | —              |
| Masdeu - - -            | 28.90 ?          | —              |
| Time - - -              | 28.70            | —              |

\* *u*, in the Meteorological Table, indicates "Ugly threatening weather."

329.—METEOROLOGICAL ABSTRACTS DEDUCED FROM  
MONTH OF  
BAROMETER.

| 6. A.M.<br>Baro. | 9. A.M.<br>Baro. | Noon.<br>Baro. | 3 P.M.<br>Baro. | 6 P.M.<br>Baro. | 9 P.M.<br>Baro. |
|------------------|------------------|----------------|-----------------|-----------------|-----------------|
| Th.              | Th.              | Th.            | Th.             | Th.             | Th.             |
| 29.917           | 75.5             | 29.952         | 79.4            | 29.963          | 82.7            |
|                  |                  |                |                 | 29.914          | 79.             |
|                  |                  |                |                 | 29.906          | 77.7            |
|                  |                  |                |                 | 20.937          | 77.6            |

The month generally fine, only four rainy days for short periods ; 1.8 in. of rain fell. The barometer generally standing below 30 inches; falling in strong southeasterly winds, and rising with northerly breezes ; height of the cistern above the

## MONTH OF

30.126 | 66. | 30.155 | 71 | 30.147 | 69.4 | 30.113 | 77.8 | 30.116 | 69.6 | 30.134 | 68

The first 10 days fine, the remainder of the month overcast; weather squally, much rain during the last week. Except the four first days of this month, the barometer never was below 30 inches, and rose as high as 30.335 in., and rising with fresh breezes from the northwest. The winds variable, changing frequently several times during the 24 hours; they were from

## MONTH OF

30.156 | 55.5 | 30.184 | 56.6 | 30.190 | 59. | 30.173 | 59. | 30.173 | 60. | 30.199 | 58

This month generally overcast with rain, the barometer in easterly winds fell below 30 inches. Winds were northeast 2

## MONTH OF

30.303 | 52. | 30.350 | 48. | 30.326 | 52. | 30.311 | 53. | 30.314 | 52. | 30.335 | 47

Weather finer than last month; the barometer kept very high, being 30.588 inches on the 10th; winds light from the northwest; it generally rose as the winds freshened from that quarter, and during calms fell to 30.02 inches. Winds south-

## MONTH OF

30.332 | 39.7 | 30.447 | 42. | 30.377 | 45.5 | 30.304 | 45. | 30.354 | 44. | 30.347 | 42

Misty weather with a good deal of rain ; barometer ranging from 30.606 to 30.084 in., falling previously to southeasterly winds. Snow the last two days ; winds fresh with squalls.

## MONTH OF

30.366 | 36.7 | 30.403 | 39. | 30.389 | 44.8 | 30.368 | 45.3 | 30.367 | 45.8 | 30.387 | 41

Month generally fine ; winds northwest  $5\frac{1}{2}$  days, north  $2\frac{1}{2}$

The climate of Chusan is subject to a range of temperature similar to that in the same latitude upon the coast of North America ; the thermometer in the shade standing at  $103^{\circ}$  in the month of September, and at  $25^{\circ}$  in the month of February.

MONTHLY REGISTERS KEPT AT CHUSAN.  
SEPTEMBER 1840.

| THERMOMETER.  |               |              |               |               |               |       |      | BAR. | THER. |
|---------------|---------------|--------------|---------------|---------------|---------------|-------|------|------|-------|
| 6 A.M.<br>Air | 9 A.M.<br>Wet | Noon.<br>Air | 3 P.M.<br>Wet | 6 P.M.<br>Air | 9 P.M.<br>Wet | Mean. | Max. | Min. |       |
| 73.7          | 73.2          | 79.9         | 78.3          | 85.4          | 80            | 85.9  | 81.3 | 78.  |       |

sea 72ft. 7in. Very strong breezes were not experienced during this month. Winds easterly 10 days, South-easterly 6 days, North-easterly 8 days, and from north to west 6 days.

## OCTOBER.

|     |      |    |      |      |      |      |      |     |    |      |    |        |    |    |
|-----|------|----|------|------|------|------|------|-----|----|------|----|--------|----|----|
| 64. | 61.7 | 71 | 70.7 | 74.3 | 73.2 | 74.4 | 68.8 | 67. | 66 | 65.6 | 65 | 30.148 | 92 | 51 |
|-----|------|----|------|------|------|------|------|-----|----|------|----|--------|----|----|

the north 6 days, northeast 12 days, northwest 9 days, and 4 days from southeast to southwest. On the 29th, the meteorological instruments were removed to the suburbs, where the height of the cistern of the barometer above mean tide level was 24 feet.

## NOVEMBER.

|     |     |     |     |     |     |     |      |     |     |     |     |        |    |    |
|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|--------|----|----|
| 51. | 50. | 56. | 55. | 61. | 57. | 66. | 66.6 | 59. | 58. | 59. | 57. | 30.179 | 73 | 42 |
|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|--------|----|----|

days, N.N.W. 8 days, northwest 4 days, northerly 4 days, westerly 4 days, S.S.W. 2 days, and calm 4 days.

## DECEMBER.

|     |      |     |      |     |      |     |      |     |      |     |      |        |    |    |
|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|--------|----|----|
| 43. | 40.9 | 46. | 43.4 | 52. | 49.2 | 51. | 48.5 | 48. | 46.6 | 41. | 43.4 | 30.323 | 77 | 27 |
|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|--------|----|----|

westerly  $\frac{1}{2}$  a day, westerly  $2\frac{1}{2}$  days, northwesterly 15 days, northeasterly  $\frac{1}{2}$  a day, northerly  $5\frac{1}{2}$  days, easterly 1 day, and calm 6 days; much rain during the last week.

## JANUARY 1841.

|     |     |     |     |     |     |     |      |     |     |     |     |        |    |    |
|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|--------|----|----|
| 35. | 33. | 42. | 42. | 45. | 43. | 46. | 43.3 | 40. | 39. | 39. | 38. | 30.360 | 62 | 28 |
|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|--------|----|----|

From the northwest  $20\frac{1}{2}$  days, west 2 days, southwest 1 day, southeast 1 day, north  $2\frac{3}{4}$  days, southeast 1 day, and calm  $2\frac{3}{4}$  days.

## FEBRUARY.

|      |    |      |     |      |      |      |      |      |      |      |     |        |    |    |
|------|----|------|-----|------|------|------|------|------|------|------|-----|--------|----|----|
| 34.8 | 33 | 39.7 | 39. | 45.8 | 43.8 | 44.2 | 42.2 | 41.9 | 40.9 | 37.8 | 36. | 30.380 | 65 | 25 |
|------|----|------|-----|------|------|------|------|------|------|------|-----|--------|----|----|

days, southwest 1 day, southeast  $2\frac{1}{2}$  days, calm 5 days.

The following is the range of temperature during the months that the island was occupied by the English troops.

September, from  $103^{\circ}$  to  $65^{\circ}$ . October,  $92^{\circ}$  to  $51^{\circ}$ .

November, from  $74^{\circ}$  to  $40^{\circ}$ . December,  $77^{\circ}$  to  $27^{\circ}$ .

January, from  $60^{\circ}$  to  $28^{\circ}$ . February,  $60^{\circ}$  to  $25^{\circ}$ .

The greatest range of temperature during 24 hours was 28°. During the month of January, the barometer was at the height of 30.606 inches, and generally speaking fell in light or easterly winds. A few days southeasterly winds occurred in the month of September, but the northerly monsoon could not be said to have commenced until the beginning of October. The following are the number of rainy days in each month: September 4 days, October 3 days, November 12 days, December 7 days, January 11 days, February 3 days.

*Abstract of the Register kept on board the ship Mahamoodie, in the year 1844.*

330. ABSTRACT of a meteorological journal kept on board the ship *Mahamoodie*, at anchor under Wooseu Island, Amoy, in the year 1844.

| Month.    | Barometer. |       | Therm. |      | Prevailing Winds. |      |    |      |    |      |    |      |       |
|-----------|------------|-------|--------|------|-------------------|------|----|------|----|------|----|------|-------|
|           | Max.       | Min.  | Max.   | Min. | N.                | N.W. | W. | S.W. | S. | S.E. | E. | N.E. | Clim. |
| July 1844 | 30.05      | 29.70 | 90.    | 79.  | 4                 | 5    | 4  | 61   | 70 | 24   | 7  | 7    | 4     |

Rain occurred on five days, lightning frequent; from the 14th to the end of the month land and sea breezes generally prevailed; the former from 11h. P.M. to 3h. A.M.; the latter from 9h. A.M. to 8h. P.M.

Aug. 1844 | 30.05 | 29.45 | 88 | 76 | 18 | 13 | 1 | 19 | 39 | 23 | 16 | 39 | 18

There were 15 days during this month that rain fell. On the first it blew hard from N.N.W. with a low barometer, red haze at sunset. On the 11th it again blew hard from the N.W. barometer low, dense mass of clouds to the N.W. Squall lasted two hours. At midnight on the 22d the barometer, which had gradually fallen for the last three days, stood at 29.45, wind S. b. E. force 3, weather o.d.r.

|          |       |          |        |        |
|----------|-------|----------|--------|--------|
| 3h. A.M. | 29.46 | South    | 8      | o.g.r. |
| 9h. A.M. | 29.65 | W.S.W.   | 6      | o.g.r. |
| Noon.    | 29.70 | S.S.W.   | 5      | o.g.r. |
| 3h. P.M. | 29.74 | S. b. W. | 5 to 9 | o.g.r. |
| 9h. P.M. | 29.85 | S.S.W.   | 4 to 8 | o.g.r. |
| Midnight | 29.88 | S.S.W.   | 6      | o.p.g. |

Sept. 1844 | 30.11 | 29.72 | 84 | 75 | 14 | 6 | 4 | 7 | 15 | 5 | 26 | 101 | 2

Four days of rain during this month.

| Month.    | Barometer. |      | Therm. |      | Prevailing Winds. |      |    |      |    |      |    |      |     |  |
|-----------|------------|------|--------|------|-------------------|------|----|------|----|------|----|------|-----|--|
|           | Max.       | Min. | Max.   | Min. | N.                | N.W. | W. | S.W. | S. | S.E. | E  | N.E. | Cm. |  |
| Oct. 1844 | 30.23      | 30.0 | 82     | 69   | 13                | —    | —  | —    | —  | 2    | 22 | 144  | 3   |  |

First part of the month fine, with a steady monsoon; latter part overcast, gloomy weather. A gale of wind which lasted 3 days commenced on the 24th; barometer steady at 30.05.

|           |       |       |    |    |    |    |   |   |   |   |    |     |   |
|-----------|-------|-------|----|----|----|----|---|---|---|---|----|-----|---|
| Nov. 1844 | 30.32 | 30.04 | 76 | 60 | 28 | 12 | 4 | 1 | 2 | 1 | 15 | 114 | 5 |
|-----------|-------|-------|----|----|----|----|---|---|---|---|----|-----|---|

Generally speaking a fine month.

This register was observed 6 times in the course of the 24 hours, viz. midnight 3h. A.M. and 9h. A.M.; noon, 3h. P.M. and 9h. P.M. by Mr. Jones, who was kind enough to furnish this copy.

331. DOCTOR J. I. MURRAY'S summary of the meteorological *Summary of meteorological observations at Woosung* from October 1847 to September 1849.

In 1849, Doctor Murray writes, "The following table will give most of the information necessary in regard to this year's observations, besides a view of the mean of the two years' observations. I cannot however pass over the 'Rain' column, without directing attention to the extraordinary difference in the quantity that fell in the two years; the present surpassing the former by 26.7 inches. That this was an exception to the usual state of matters in this country, there can be no doubt. The country was flooded for hundreds of miles, the cotton crop almost entirely spoilt, and great fears entertained of a famine caused by the loss of rice. In conclusion, I have only to remark, that after another year's experience I have seen no reason to change my views as to the healthiness of this port.

"In the 'Sympiesometer' column the difference which occurs in the height of the fluid between the months of January and February, is to be accounted for in part from the fact of a new instrument having been used the latter end of the month."

| Year<br>1848 and<br>1849. | Weight of Air. |                     | Temp.      |      | Wind.  |             | Rain.  |        |          |                                  |
|---------------------------|----------------|---------------------|------------|------|--------|-------------|--------|--------|----------|----------------------------------|
|                           | Month.         | Sympieso-<br>meter. | Barometer. | Air. | Water. | Quarter.    | Force. | Daily. | Monthly. | No. of days on<br>which it fell. |
| 1848.                     | Inches.        | Inches.             |            | °    | °      |             |        |        |          |                                  |
| October                   | 28.84          | 29.99               | 66         | 68   |        | N.E. - -    | 3.6    | 0.10   | 3.15     | 9                                |
| Nov. -                    | 29.01          | 30.53               | 53         | 54   |        | N.W. vble.  | 3.0    | 0.04   | 1.37     | 6                                |
| Dec. -                    | 28.97          | 30.53               | 49         | 48   |        | N.E. - -    | 2.9    | 0.01   | 0.54     | 8                                |
| 1849.                     |                |                     |            |      |        |             |        |        |          |                                  |
| Jan. -                    | 29.03          | 30.57               | 42         | 45   |        | N.N.W. vbl. | 3.0    | 0.02   | 0.70     | 7                                |
| Feb. -                    | 30.20          | 30.43               | 48         | 45   |        | N.E. - -    | 2.8    | 0.13   | 3.85     | 16                               |
| March -                   | 30.22          | 30.40               | 53         | 50   |        | S.E. vble.  | 2.8    | 0.09   | 2.91     | 10                               |
| April -                   | 29.99          | 30.22               | 59         | 51   |        | S.E. - -    | 3.1    | 0.10   | 3.01     | 15                               |
| May -                     | 29.84          | 30.16               | 68         | 66   |        | S.E. - -    | 8.0    | 0.51   | 15.98    | 16                               |
| June -                    | 29.53          | 30.00               | 73         | 71   |        | S.E. - -    | 2.3    | 0.33   | 9.99     | 19                               |
| July -                    | 29.32          | 29.96               | 82         | 80   |        | S.S.E. - -  | 8.0    | 0.36   | 11.33    | 13                               |
| August -                  | 29.21          | 29.94               | 84         | 84   |        | S.S.E. - -  | 2.8    | 0.11   | 3.45     | 6                                |
| Sept. -                   | 29.43          | 30.08               | 80         | 80   |        | East - -    | 2.9    | 0.07   | 2.15     | 10                               |
| / 48 & / 49               |                |                     |            |      |        |             |        |        |          |                                  |
| Mean -                    | 29.47          | 30.23               | 63.3       | 62.6 | Total  | - - -       | - - -  | - -    | 58.43    | 135                              |
| / 47 & / 48               |                |                     |            |      |        |             |        |        |          |                                  |
| Mean -                    | 29.43          | 29.93               | 62.5       | 61.6 | - - -  | - - -       | - - -  | - -    | 32.36    | 140                              |

332.—WOOSUNG METEOROLOGICAL TABLES, SANITARY CONDITION AND METEOROLOGY OF WOOSUNG IN 1847-8. By Dr. J. I. MURRAY.

Having made my meteorological observations public from month to month, since August 1847, through the medium of the China Mail, I beg to offer a few remarks, with a summary of the results deducible from those taken between the months of October 1847 and September 1848, both inclusive, in the hope that, however imperfect these observations may be, the time devoted to this branch of science may not prove unproductive of some small benefit to shipmasters or others interested in the meteorology of this port.

The anchorage of Woosung, at which these observations are taken, is situated at the embouchure of the Shanghai river as it flows into the great Yangtzekeang, nearly opposite the

fishing village from which it takes its name. Being probably the chief opium station in China, and the outport of an immense and daily increasing trade, both British and foreign, it cannot be uninteresting or useless to examine the changes which there become apparent to the meteorologist.

Originally, in all probability, overflowed by the waters of the Yangtzekeang, and only rescued by embankments in many places of an almost stupendous workmanship, the surrounding country is still liable to be overflowed at very high tides, as occurred during the typhoon of July last. Under these circumstances human health would naturally be rated at a very low valuation, had we not facts before us to prove that, where proper attention is paid to the other predisposing causes of health, and when disease does appear, if it is promptly treated, the climate of Woosung is, perhaps, the most healthy of any situation in the East, if it do not even equal that of Great Britain. This somewhat bold assertion must not, however, be received without some little explanation. Probably the greatest objection to this statement lies in the great liability Europeans present to being attacked by intermittent fever in the spring and autumn of the year; but, on the other hand, it seldom proves intractable; and, if taken in the first intermission, is very generally cured at once. This summer, however, immediately after the typhoon in July, and occasionally up to the present time, the intermittent fever of former years has shown a great tendency to pass into the typhoid type; but in no case I have yet met with has it assumed any very alarming symptoms.

Probably the only other disease of climate to which Europeans resident in Woosung are peculiarly liable is dysentery, or, more commonly, chronic diarrhoea. But this may generally be traced to some indiscretion or neglect on the part of the patient; and although I have met with many cases, and some of very long standing, they have always succumbed to proper treatment without much difficulty. Where this disease is neglected, it is liable to pass into cholera before proving fatal.

I have never met with actual cholera arising under other circumstances.

It will be observed that I have omitted all mention of rheumatism, &c., as this disease, though common, may have its origin traced in general to a very different cause than climate. Setting aside, therefore, the subject of health, which the limit of these observations will not allow me to enlarge on, I must make a few remarks on the tables themselves.

At a glance it will be seen that these observations have been taken only twice a day, viz., at 9 A.M. and 3 P.M., and consequently that, although the mean state of the atmosphere may be very justly inferred from an examination of them, that it would be decidedly erroneous to draw any conclusions as to the maximum or minimum range of the mercury, which is in no ways here pretended to be pointed out.

In the "Sympiesometer" column it will be observed that there is a very great descent of fluid indicated, more particularly in July, from which the instrument has never rallied. A certain proportion of this must be attributed to the evaporation caused by the great heat, as this instrument has been in my possession since August 1847, when it was brought out from England by the "Jeremiah Garnet." It may further be remarked that, on comparing the present range of this sympiesometer with a new instrument brought me by the "England's Queen" in August last, I find the latter to be half an inch higher. In future, I shall therefore take the range of both instruments, calling the new one "Adie's" in the tables (the other being manufactured by Jones, Gray, and Keen), until August 1849, when I shall probably receive another new instrument.

In the "Barometer" column I believe that from April till September the range of the mercury there given is a little too low; for, although the instrument is a very fine one, prepared by Adie of Edinburgh, it is not adapted for the motions of a floating establishment, and therefore liable to give wrong indications. I have it now, however, better arranged, and hope, in future, to be more accurate.

In the thermometrical observations, the greatest care has been taken that the thermometers should be really in the shade, not only as regarded sun, but wind. The instruments are Adie's best.

The "prevailing quarter of the wind," as stated in the tables, can, of course, only be proximate.

In the "Rain" column, I have first indicated the mean daily fall of rain; that is to say, I have divided the total amount fallen in each month by the number of days in that month, and in the last column have indicated the number of days in which it actually fell; so that at the end of the year I am enabled to give the mean daily fall of rain throughout the year, the total amount which fell during the year, and the absolute number of days on which it rained.

I think I have given all the necessary explanations regarding these tables, and must now lay them before the public, well aware of their imperfections, most of which I trust to be able to remedy during the ensuing twelvemonth.

JOHN IVOR MURRAY, M.D.

Woosung Dispensary,

Nov. 9, 1848.

TABULAR VIEW OF THE MEAN OF THE METEOROLOGICAL OBSERVATIONS TAKEN AT THE WOOSUNG DISPENSARY,  
From OCTOBER 1847 to SEPTEMBER 1848.

| Year.<br>Month.             | STAPLESSOMETER,<br>In Inches and Decimals. |        |        | BAROMETER,<br>In Inches and Decimals. |        |        | FAHRENHEIT'S THERMOMETER. |        |               | WIND.  |        |        | RAIN.          |                        |       | In Inches and<br>Decimals. |          | No. of<br>Days<br>in<br>which<br>it fell. |          |          |
|-----------------------------|--|--------|--------|---------------------------------------|--------|--------|---------------------------|--------|---------------|--------|--------|--------|----------------|------------------------|-------|----------------------------|----------|---|----------|----------|
|                             | 9 A.M.                                     |        | 3 P.M. | Mean.                                 | 9 A.M. |        | 3 P.M.                    | Mean.  | In the Shade. |        | 3 A.M. | 3 P.M. | Mean.          | Quarter<br>Prevailing. |       | A.M.                       | P.M.     | Mean.                                     | Daily.   | Monthly. |
|                             | 9 A.M.                                     | 3 P.M. | Mean.  | 9 A.M.                                | 3 P.M. | Mean.  | 9 A.M.                    | 3 P.M. | Mean.         | 9 A.M. | 3 P.M. | Mean.  | A.M.           | P.M.                   | Mean. | Daily.                     | Monthly. | Daily.                                    | Monthly. |          |
| 1847                        | 29.890                                     | 29.875 | 29.892 | 30.332                                | 30.292 | 30.312 | 67.7                      | 69.6   | 68.6          | 68.0   | 68.5   | 68.3   | N.E.           | -                      | 3.0   | 3.2                        | 3.1      | 0.01                                      | 0.47     | 8        |
| "                           | 29.051                                     | 29.927 | 29.989 | 30.353                                | 30.312 | 30.332 | 60.1                      | 63.9   | 62.0          | 60.9   | 61.2   | 61.0   | N.E.           | -                      | 2.9   | 3.2                        | 3.0      | 0.63                                      | 1.15     | 8        |
| "                           | 30.133                                     | 30.02  | 30.076 | 30.39                                 | 30.35  | 30.37  | 43.0                      | 48.0   | 45.7          | 47.0   | 47.0   | 47.0   | N.W.           | -                      | 3.3   | 3.5                        | 3.4      | 0.04                                      | 1.25     | 12       |
| "                           | 30.06                                      | 30.02  | 30.04  | 30.46                                 | 30.43  | 30.45  | 30.0                      | 41.0   | 40.0          | 41.5   | 42.0   | 41.7   | N.E.           | -                      | 3.2   | 3.4                        | 3.4      | 0.12                                      | 3.83     | 14       |
| 1848                        | 29.97                                      | 29.99  | 30.48  | 30.07                                 | 30.28  | 38.0   | 41.0                      | 39.5   | 39.0          | 39.7   | 39.4   | 39.4   | N.W.           | -                      | 3.2   | 3.4                        | 3.3      | 0.68                                      | 1.09     | 5        |
| "                           | 29.00                                      | 29.97  | 29.99  | 30.48                                 | 30.07  | 30.28  | 38.0                      | 41.0   | 39.5          | 39.0   | 39.7   | 39.4   | N.W.           | -                      | 3.2   | 3.4                        | 3.3      | 0.68                                      | 1.09     | 5        |
| "                           | 29.713                                     | 29.643 | 29.678 | 30.281                                | 30.242 | 30.262 | 46.6                      | 53.3   | 49.9          | 48.4   | 48.9   | 48.6   | N.E.           | -                      | 3.2   | 3.4                        | 3.4      | 0.08                                      | 2.59     | 12       |
| "                           | 29.677                                     | 29.554 | 29.549 | 29.742                                | 29.689 | 29.714 | 59.7                      | 59.1   | 59.4          | 54.7   | 55.6   | 55.1   | E.N.E.         | -                      | 3.0   | 3.4                        | 3.2      | 0.15                                      | 4.66     | 19       |
| "                           | 29.307                                     | 29.150 | 29.229 | 29.478                                | 29.468 | 29.473 | 70.1                      | 72.7   | 71.4          | 66.4   | 67.0   | 66.7   | S.E., variable | 2.6                    | 2.8   | 2.7                        | 0.02     | 0.86                                      | 7        |          |
| "                           | 29.070                                     | 28.971 | 29.021 | 29.429                                | 29.406 | 29.417 | 72.6                      | 73.8   | 73.2          | 71.9   | 71.9   | 71.9   | S.E.           | 2.9                    | 3.6   | 3.2                        | 0.12     | 3.88                                      | 17       |          |
| "                           | 28.672                                     | 28.549 | 28.617 | 29.364                                | 29.313 | 29.338 | 81.2                      | 83.1   | 82.2          | 79.3   | 80.1   | 79.7   | S.S.E.         | 3.4                    | 4.0   | 3.7                        | 0.22     | 7.01                                      | 16       |          |
| "                           | 28.589                                     | 28.455 | 28.522 | 29.562                                | 29.572 | 29.567 | 80.1                      | 83.7   | 81.9          | 81.6   | 81.9   | 81.8   | S.S.E.         | 2.8                    | 3.6   | 3.2                        | 0.11     | 3.57                                      | 11       |          |
| "                           | 28.624                                     | 28.500 | 28.562 | 29.667                                | 29.686 | 29.676 | 75.3                      | 79.1   | 77.2          | 78.6   | 79.0   | 78.8   | N.N.W.,        | 2.6                    | 2.6   | 2.6                        | 0.06     | 2.00                                      | 11       |          |
| Mean of<br>Twelve<br>Months | 29.490                                     | 29.386 | 29.433 | 29.961                                | 29.902 | 29.932 | 61.1                      | 64.0   | 62.5          | 61.4   | 61.9   | 61.6   | -              | -                      | 3.0   | 3.3                        | 3.1      | 0.688                                     | 32.36    | 140      |

## ABSTRACT of the METEOROLOGICAL REGISTER kept at the WOOSTUNG DISPENSARY by Dr. MURRAY.

| Month.      | Year | Barometer.              |       |      | Temp. |      |      | Temp. of Water.       |      |      | Rain Gauge. |    |      | Prevailing winds in half days. |      |   |      | Remarks.  |
|-------------|------|-------------------------|-------|------|-------|------|------|-----------------------|------|------|-------------|----|------|--------------------------------|------|---|------|---|
|             |      | Maxm.                   | Minm. | Max. | Min.  | Max. | Min. | Max.                  | Min. | Max. | N. N.W.     | W. | S.W. | S.                             | S.E. | E.  | N.E. | Clim.   |
| August -    | 47   | Sympiesometer.<br>29.60 | 29.04 | 91°  | 73°   | 87°  | 80°  | 8                     | 3    | 2    | 13          | 12 | 11   | 5                              | 1    | Thunder and lightning the first day or two, the month otherwise fine.   |      |   |
| " -         | 48   | 29.72                   | 28.30 | 88   | 76    | 83   | 80   | 3.67                  | 8    | 3    | 9           | 22 | 4    | 9                              | 2    | Strong breeze from the S.E. at first, the barometer falling to 29.30. Another gale on the 17th from the same quarter. Barometer steady. |      |   |
| " -         | 49   | 30.18                   | 30.82 | 94   | 77    | 88   | 79   | 3.45                  | 9    | 6    | 7           | 7  | 10   | 11                             | 7    | 4   | 1    | A breeze from the N.N.E. on the 23d; rising barometer.  |
| " -         | 50   | 30.20                   | 29.73 | 95   | 76    | •    | •    | 1.03                  | 1    | 8    | 7           | 8  | 4    | 18                             | 5    | 3   | 8    | A fine month. Heavy dews. Thunder and lightning, 4 times.   |
| September - | 47   | Sympiesometer.<br>29.64 | 29.05 | 86   | 71    | 82   | 74   | In 15 days.<br>3.17   | 14   | 5    | 0           | 0  | 8    | 12                             | 10   | 11  | 0    | The month generally speaking overcast. A rain gauge put up on the 15th.   |
| " -         | 48   | 29.60                   | 28.60 | 86   | 70    | 82   | 76   | In the month.<br>2. 0 | 11   | 12   | 1           | 0  | 3    | 13                             | 0    | 13  | 7    | A trifling whirlwind, causing the water over which it passed to boil and foam, occurred on the 4th without affecting the barometer. |
| " -         | 49   | 30.29                   | 29.90 | 89   | 73    | 82   | 76   | 2.15                  | 11   | 8    | 2           | 1  | 1    | 6                              | 16   | 15  | 0    | The N.E. monsoon set in on the 16th, with a low barometer.  |
| " -         | 50   | 30.38                   | 29.78 | 78   | 62    | •    | •    | 16.67                 | 12   | 11   | 1           | 3  | 0    | 5                              | 8    | 18  | 2    | A wet month. 7.02 inches of rain fell in 24h. The monsoon this year did not set in so definitely as usual.                          |
| October -   | 47   | 30.46                   | 30.17 | 76   | 60    | 76   | 62   | 0.47                  | 20   | 4    | 3           | 1  | 2    | 4                              | 7    | 21  | 0    | A dry month with heavy dews.  |
| " -         | 48   | 30.53                   | 29.69 | 78   | 54    | 76   | 61   | 3.15                  | 13   | 14   | 3           | 2  | 1    | 1                              | 3    | 24  | 1    | The wind for the first ten days was strong from the N.E., terminating in a gale, with a low barometer.                              |
| " -         | 49   | 30.65                   | 30.20 | 74   | 50    | 76   | 68   | 0.39                  | 8    | 13   | 4           | 1  | 1    | 4                              | 15   | 13  | 3    | A dry month with fine weather. On the 1st there was a strong breeze from N.N.E. which veered to N.W.                                |
| " -         | 50   | 30.61                   | 30.03 | 76   | 57    | •    | •    | 1.65                  | 7    | 20   | 1           | 1  | 2    | 10                             | 10   | 9   | 2    | First and latter part of the month fine, S.E. winds prevailed more than usual, with a high barometer.                               |
| November -  | 47   | 30.52                   | 30.13 | 72   | 55    | 64   | 58   | 1.15                  | 10   | 10   | 3           | 2  | 3    | 6                              | 7    | 18  | 0    | A fine month, although overcast. On the 6th strong gale from N.N.E. Barometer rising.   |
| " -         | 48   | 30.77                   | 30.24 | 71   | 33    | 62   | 49   | 1.37                  | 7    | 11   | 14          | 1  | 1    | 5                              | 9    | 9   | 3    | Frost occurred on the morning of the 12th. Generally speaking a fine month.   |
| " -         | 49   | 30.74                   | 30.23 | 68   | 38    | 68   | 49   | 0.90                  | 14   | 22   | 3           | 0  | 2    | 3                              | 3    | 11  | 2    | 15th, 23d, 24th, and 25th.  |
| " -         | 50   | 30.75                   | 29.96 | 67   | 28    | •    | •    | 2.35                  | 1    | 22   | 1           | 4  | 7    | 9                              | 4    | 17  | 1    | Three days of frost, the earliest being the 25th.   |

## ABSTRACT of the METEOROLOGICAL REGISTER, kept at the Woosung Dispensary, by Dr. Murray.

| Month.   | Barometer. | Temp.            |                  |      |      | Rain. | Prevailing winds in half days. |      |    |      |    |      | Remarks. |    |    |    |   |  |   |
|----------|------------|------------------|------------------|------|------|-------|--------------------------------|------|----|------|----|------|----------|----|----|----|---|--|---|
|          |            | Max.             | Min.             | Max. | Min. |       | N.                             | N.W. | W. | S.W. | S. | S.E. | E.       |    |    |    |   |  |   |
| December | - 1847     | Inches.<br>30.59 | Inches.<br>29.88 | 30°  | 32°  | 58°   | 44°                            | 1.25 | 11 | 24   | 7  | 5    | 1        | 3  | 4  | 3  | 4 | A fine month, frost on 11 days.                              |   |
| "        | - 1848     | 30.70            | 30.35            | 61   | 38   | 50    | 47                             | 0.54 | 11 | 14   | 2  | 3    | 3        | 1  | 6  | 19 | 3 | Frost in the morning on 12 days.                             |   |
| "        | - 1849     | 30.65            | 30.14            | 70   | 33   | 53    | 48                             | 0.98 | 16 | 16   | 9  | 1    | 6        | 2  | 7  | 8  | 5 | First part overcast; latter, heavy dews. Frost on 14 days.   |   |
| January  | - 1848     | 30.67            | 30.26            | 55   | 31   | 44    | 40                             | 3.83 | 18 | 16   | 4  | 1    | 1        | 1  | 4  | 17 | 0 | Sky, generally speaking, overcast; frost on 11 days.         |   |
| "        | - 1849     | 30.84            | 30.22            | 61   | 29   | 47    | 41                             | 0.7  | 12 | 12   | 3  | 1    | 3        | 2  | 8  | 8  | 3 | Barometer rising, with wind from N. and W.; 14 days frost.   |   |
| "        | - 1850     | 30.56            | 29.97            | 60   | 28   | 48    | 37                             | 1.67 | 16 | 17   | 3  | 0    | 7        | 4  | 4  | 9  | 2 | Frost 18 days, and the thermometer fell to 24° 6 A.M., 24th. |   |
| February | - 1848     | 30.62            | 29.99            | 3    | 28   | 45    | 36                             | 1.09 | 6  | 28   | 3  | 1    | 4        | 2  | 6  | 8  | 0 | Snow on the ground on the morning of the 2d. Frost 30 days.  |   |
| "        | - 1849     | 30.70            | 29.94            | 59   | 38   | 47    | 42                             | 3.85 | 6  | 3    | 3  | 3    | 2        | 5  | 10 | 21 | 3 | Bad weather in the latter part of this month.                |   |
| "        | - 1850     | 30.79            | 30.17            | 51   | 30   | 42    | 39                             | 2.60 | 8  | 14   | 4  | 1    | 2        | 2  | 9  | 15 | 1 | Frost on two days. See remark below.                         |   |
| March    | - 1848     | 30.54            | 29.66            | 68   | 41   | 58    | 44                             | 2.59 | 12 | 9    | 1  | 1    | 5        | 4  | 11 | 19 | 0 | Frost on the mornings of the 6th and 10th.                   |   |
| "        | - 1849     | 30.76            | 29.66            | 69   | 39   | 58    | 46                             | 2.91 | 8  | 8    | 3  | 3    | 3        | 18 | 1  | 12 | 6 | Thunder and lightning 3 times.                               |   |
| "        | - 1850     | 0                | 0                | 0    | 0    | 0     | 0                              | 0.0  | 0  | 0    | 0  | 0    | 0        | 0  | 0  | 0  | 0 | 0  | hauled to the W.N.W., and then shifted to the E.N.E., barometer rising. |

\* A fresh breeze from E. S.E. on the 11th, and from the E.N.E. on the 25th; on the latter occasion the barometer stood at 29° 94' with the wind at S.W.; it

## ABSTRACT of the METEOROLOGICAL JOURNAL, kept by Dr. Murray, at the Woosung Dispensary.

| Month.       | Barometer.<br>Inches<br>Max. | Temp.<br>Max. | Temp.<br>Min. | Temp. of<br>water. | Rain.<br>Gauge. | Prevailing winds in half days.      |       |      |      |      |      | Remarks. |    |
|--------------|------------------------------|---------------|---------------|--------------------|-----------------|-------------------------------------|-------|------|------|------|------|----------|----|
|              |                              |               |               |                    |                 | N. N.W. W. S.W. S. S.E. E. N.E. Clm |       |      |      |      |      |          |    |
|              |                              |               |               |                    |                 | Max.                                | Min.  | Max. | Min. | Max. | Min. | Max.     |    |
| April - 1848 | 29.40                        | 75°           | 44°           | 60°                | 62°             | 4.66                                | 5     | 1    | 0    | 9    | 5    | 19       | 1  |
| " - 1849     | 30.65                        | 29.69         | 70            | 43                 | 61              | 56                                  | 3.01  | 8    | 10   | 3    | 1    | 20       | 3  |
| " - 1850     | 30.60                        | 29.90         | 73            | 50                 | —               | —                                   | 4.35  | 8    | 10   | 3    | 1    | 9        | 13 |
| May - 1848   | 29.48                        | 29.36         | 82            | 62                 | 70              | 60                                  | 0.86  | 8    | 4    | 4    | 4    | 11       | 9  |
| " - 1849     | 30.49                        | 29.90         | 84            | 56                 | 71              | 60                                  | 15.98 | 5    | 3    | 5    | 3    | 4        | 18 |
| " - 1850     | 30.35                        | 29.64         | 88            | 63                 | —               | —                                   | 4.56  | 0    | 6    | 4    | 8    | 7        | 18 |
| June - 1848  | 29.58                        | 29.18         | 82            | 67                 | 74              | 70                                  | 3.88  | 5    | 6    | 0    | 7    | 14       | 22 |
| " - 1849     | 30.25                        | 29.71         | 85            | 68                 | 76              | 68                                  | 9.99  | 2    | 4    | 3    | 7    | 5        | 15 |
| " - 1850     | 30.16                        | 29.67         | 88            | 64                 | —               | —                                   | 9.79  | 1    | 13   | .1   | 1    | 3        | 17 |
| July - 1848  | 29.46                        | 29.51         | 90            | 73                 | 82              | 74                                  | 7.01  | 2    | 4    | 1    | 9    | 11       | 26 |
| " - 1849     | 30.18                        | 29.76         | 94            | 71                 | 88              | 75                                  | 11.33 | 1    | 1    | 1    | 6    | 18       | 13 |
| " - 1850     | 30.09                        | 29.76         | 95            | 69                 | —               | —                                   | 3.90  | 0    | 2    | 1    | 9    | 16       | 14 |

The barometer is remarkable for permanent depression. Thunder and lightning occurred four times. See remarks\*.

Fine weather at first; afterwards overcast with rain. A breeze from the S.E. on the 24th, when the barometer fell to 29° 40'.

The month generally speaking, overcast. Strong breezes from the S.E. occurred four times.

The first three weeks fine. Unsettled weather; the first five days with thunder and lightning. 5.63 inches of rain fell on the 26th. See remarks†.

The rain this month set in with a low barometer and light winds.

The difference between the barometer and barometer varied from +0.3 to +0°45.

Generally speaking, overcast, rain falling on 19 days.

Overcast, with rain, on 15 days. Thunder and lightning three times.

The first part of the month overcast, with thunder and lightning. A typhoon occurred on the 26th. See remarks p. 18.

In the first half of this month the whole amount of rain fell. The temperature of the river, in consequence, rose from 76 to 88.

The first part of the month overcast, the latter part fine.

333. ABSTRACT made from OBSERVATIONS taken by the late  
Mr. BEALE at MACAO for a number of YEARS.

| Month.       | Thermometer. |           |            |       |    | Barometer.   |                                |
|--------------|--------------|-----------|------------|-------|----|--------------|--------------------------------|
|              | Mean maxim.  | Mean min. | Mean temp. | Range |    | Mean height. | Average fall of rain in miles. |
|              | °            | °         | °          | from  | to | inches.      | inches.                        |
| January - -  | 57           | 45        | 51.        | 65    | 29 | 30.23        | 0.675                          |
| February - - | 58           | 45        | 51.5       | 68    | 33 | 30.12        | 1.700                          |
| March - -    | 71           | 60        | 65.5       | 79    | 45 | 30.17        | 2.150                          |
| April - -    | 76           | 69        | 72.5       | 84    | 59 | 30.04        | 5.675                          |
| May - -      | 78           | 73        | 75.5       | 86    | 69 | 29.89        | 11.850                         |
| June - -     | 84           | 79        | 81.5       | 89    | 74 | 29.87        | 11.100                         |
| July - -     | 88           | 84        | 86.        | 94    | 81 | 29.84        | 7.750                          |
| August -     | 86           | 83        | 84.5       | 90    | 79 | 29.86        | 9.900                          |
| September -  | 84           | 79        | 81.5       | 88    | 75 | 29.90        | 10.925                         |
| October -    | 76           | 70        | 73.        | 85    | 60 | 30.04        | 5.500                          |
| November -   | 68           | 61        | 64.5       | 79    | 48 | 30.14        | 2.425                          |
| December -   | 63           | 52        | 57.5       | 69    | 40 | 30.25        | 0.975                          |

This Table is taken from Fortune's China.

#### TIDES AND CURRENTS.

*Tides and Currents.*

334. The tidal wave strikes upon that portion of the Coast of China which we have to deal with, viz., from Hong Kong Island to the Yangtsekeang River, nearly at the same period; that is to say, that half-past eight is the time of high water on full and change days in the neighbourhood of the Lema Islands, and in the outer islands of the Chusan and Archipelago it is an hour later. The rise and fall, however, increases considerably to the northward; probably owing to the obstruction which the wave receives from the Phillipine Islands; and in some instances the diurnal inequality is great. The establishment for Hong Kong Island and other places along the coast is annexed, in which it will be perceived that to the east of Hong Kong Island, and as far as Breaker Point, the tides are irregular and weak; the current occasioned by the monsoon overcoming them.

*Hong Kong to Breaker Point.*

335. After passing Breaker Point, the coast trends more

northwardly, and the flood tide will be found useful to vessels bound to the northward. The rise and fall increases, passing from 7 feet at Namo Island to 12 at Tongsang, and 20 at

*Amoy to the River Min.*

Amoy. Between Amoy and the River Min, the rise of the tides vary from 16 to 18 feet at the springs, and the flood enters on the north as well as on the south side of the Haetan Straits.

336. To the north of the Min, the flood sets more determinately to the north ; it seldom, however (unless off head lands or in narrow channels) overcomes the current caused by the monsoon, but has the effect of slackening it.

337. Throughout the Chusan Archipelago and the estuaries to the north, great care and attention to the tides is necessary ; particular instructions for this purpose will be found in the Sailing Directions, and it only remains here to caution the navigator that, as his vessel approaches the coast to the north of Chusan, the tides increase in rapidity, and unless precaution is taken it will be set among the small islets of this rugged Archipelago.

338. The strength of the current increases with the freshness and duration of the monsoon, varying from 1, to as much as 3 and even 4 knots per hour ; and this requires to be especially guarded against when hove-to off a port, or running for one in thick weather. Thus a number of vessels in the S.W. monsoon have run into Hooctoo Bay instead of Amoy Harbour; and again in the N.E. monsoon have picked themselves up off Red Bay instead of Chapel Island. The current will slack a little at particular times of tide, but H.M.S. Plover seldom found it run to the south in the southerly monsoon, or to the north in the other. At the Pescadore Islands, in the month of August, a current was sometimes experienced of 4 miles per hour, running to the north, whilst with the ebb it slackened for two or three hours, but seldom ceased entirely.

| Place.  | Position.                      | High water on full and change. | Remarks.                    | Table showing the times of high water on full and change, the rise and fall of the tide, and its set. |
|---|--------------------------------|--------------------------------|-----------------------------|---|
| Hong Kong Island,<br>Victoria Harbour.<br>Ditto - - - | Cowloon Point -<br>Ditto - - - | H. M.<br>11.40<br>11.30        | In October.<br>In December. | Hong Kong to-<br>Harlem Bay.  |
| Mirs Bay - - -  | Reef in Tolo Harbour.          | 9.00                           | -                           |   |

On full and change in May, the flood inside the Ninepin Rock ran to the S.E., and the ebb to the S.W., the former at the rate of 0.3 knots, the latter 0.5 knots per hour. In March, the moon being 19 days old, the ebb ran to the S.W. 2 knots, 9 miles, in the whole tide.

Off the east point of Mirs Bay in April, 2 days after the change of the moon, the ebb made to the E. b. N., the greatest velocity being 0.3 per hour. With the flood, there is a great indraft into Mirs Bay, which must be guarded against in shaping a course from Tooniang Island to pass outside the Ninepin Rock.

| Place.            | Position.      | High water on full and change. | Remarks.                  |
|-------------------|----------------|--------------------------------|---------------------------|
| Tooniang Island - | Samun Island - | 8.00                           | —                         |
| Bias Bay - -      | Tsanchow - -   | 8.30                           | —                         |
| Harlem Bay - -    | Hebe Island -  | 10.00                          | Two days before the full. |

In the month of April the current in this neighbourhood set constantly to the westward, increasing its velocity upon the flood, but never exceeding 1 knot per hour.

|   |                      |                |      |              |
|---|----------------------|----------------|------|--------------|
| <i>Honghai Island to Jokakko Point.</i> | Honghai Island - -   | North side - - | 8.30 | In April.    |
|   | Goat Island - -      | S.W. side - -  | 7.30 | In February. |
|   | Hie Che Chin Bay - - | Kinseang - -   | 7.00 | —            |
|   | Cupchee Point - -    | Shag Rock - -  | 8.00 | —            |
|   | Tungao Road - -      | - - - -        | 3.00 | In January.  |

Five miles to the east of Tungao Road, the ebb tide ran to the west at the rate of 1.1 per hour on the 12th day of the moon ; no flood tide perceptible in January.

|                       |         |               |                            |
|-----------------------|---------|---------------|----------------------------|
| Breaker Point - -     | - - - - | - -           | Uncertain, very irregular. |
| Haimun Bay - -        | - - - - | 9.00<br>About | —                          |
| Cape of Good Hope - - | - - - - | 9.00          | —                          |

There is a tide race with the flood off the Cape of Good Hope.

| Place.         | Position.        | Time of high water on full and change | Rise and fall.              | Remarks. |
|----------------|------------------|---------------------------------------|-----------------------------|----------|
| Namo Islands - | Stewart's House. | 11.15                                 | Rise and fall about 7 feet. | —        |
| Ditto - -      | South Bay -      | 10.00                                 | Ditto.                      | —        |

The tides on the north side of Namo Island run parallel to the island at the rate of from 1 to 3 knots ; the flood tide comes in on the north, as well as on the south side of the Island.

With High Lamock Island bearing E.  $\frac{1}{2}$  S. 17 miles, the tides made as follows :—1st hour of ebb S.W.  $\frac{1}{2}$  W. 1.6 knots. 2d. S.W. b. S. 1.4 knots. 3d. S.W. b. S. 1.2 knots. 4th, S.S.W. 0.4 knots. Flood, 1st hour, N.E. b. E. 1 knot ; 2nd. E.N.E. 1.6 knots ; 3d, E.N.E. 1.4 knots ; 4th, E.N.E. 1.6 knots ; 5th, E.S.E. 0.4 knots. And in September, with High Lamock, bearing E. b. N. 4 miles. The ebb, 1st hour, S. b. E. 0.4 ; 2d, S. b. W. 1.0 knots ; 3rd, S.S.W. 1 knot ; 4th, S.S.W. 1.4 knots. The flood ran to the N.E. the whole tide, the total amount being 10.6 knots.

Thus, in passing inside of the Lamock Islands, attention to the tide as well as to the course of the ship is necessary.

| Place.         | Position. | Time<br>of high<br>water<br>on full<br>and<br>change | Rise and Fall.       | Remarks. |
|----------------|-----------|--|----------------------|----------|
| Chauan Harbour | Entrance  | 11.00  | Rise & fall 6 ft. 6. | —        |
| Shoal Bay - -  | - - - -   | 10.30  | Ditto 6 feet.        | —        |

Off Jokakko Point 4 days before the change of the moon the ebb tide ran 4.4 knots in one tide, the first two hours being from the N.E. b. E., and the last four from the N.E.

|                        |                           |       |                                |   |   |
|------------------------|---------------------------|-------|--------------------------------|---|---|
| Tongsang Har-<br>bour. | Beach under<br>Fall Peak. | 11.30 | Rise and fall<br>12 feet 3 in. | — | Tongsang<br>Harbour to<br>Amoy Harbour. |
|------------------------|---------------------------|-------|--------------------------------|---|---|

On the full and change the flood tide enters Tongsang Harbour at the rate of 0.8 knots per hour.

|              |                      |       |   |   |
|--------------|----------------------|-------|---|---|
| Rees' Pass - | Chimney Is-<br>land. | 11.30 | — | — |
|--------------|----------------------|-------|---|---|

In Rees' Pass on October 25th, with a gale of wind from the N.E., the ebb tide ran from the N. b. E. in all 12.8 miles ; there was no perceptible flood. Also in October, the Awota Rock bearing S.W.  $\frac{1}{2}$  W. 3 miles. 1st hour of flood W.S.W. 0.4 ; 2d, S.W. 0.6 ; 3rd, W.S.W. 1.0 ; 4th, W.S.W. 1.0 ; 5th, W.S.W. 0.6 ; 6th, S.W. b. W. 0.4. Ebb, 1st hour N.E. 0.4, N.N.E. 0.6 ; 3d, N.N.E. 1.0 ; 4th, N.N.E. 0.2 ; 5th, N.N.E. 0.2.

Again, with Fall Peak, bearing W. b. N. 7 miles. 1st Fall Peak, 2 hours of flood, S.S.E. 1.6 ; 3d, S.E. b. E. 1 knot. Ebb, 1st hour N.E. b. N., 1 knot ; 2d, 2 knots ; 3d, N.N.E. 1.4 knots ; 4th, N.b.E. 1.4 ; 5th, North 1 knot. Another observa-

tion in Rees' Pass, the moon's age being 11 days, gives the set of the ebb from the N.N.E., last hour north rate, 1.2. Flood from the S.W. at the rate of 0.6 per hour; breeze N.E. 7. Red Bay in October, the moon being 19 days old, rise and fall 11 feet. Ebb W.b.N. and W.N.W., the whole amount of tide 2.6 knots. Flood, 1st hour, W.S.W. 1 knot; then E.S.E. for the remainder of the tide, whole amount 1.4 knots. Again with the moon's age 9 days. Ebb north, and then N.W., 1 mile per hour, and the flood E.N.E., at 0.4 per hour.

*Lamtia Islet.* With Lamtia Islet, bearing W. S. W. 7 miles; 6 days after the change in December, the ebb made from the E.N.E., then N.E., and for the last three hours N.W.; total amount in the tide, 3.8 knots. The flood came from the S.S.W., then south; total amount 4.6 knots.

Under Wooseu Island on the 4th day of the moon, the ebb tide from the N.W. at the rate of 1.2. The flood from S.S.E. at 0.6 per hour. Between Wooseu Island and the main, the tides are more rapid, and vessels should not attempt to pass. Several have been seriously damaged by so doing.

| Place.                    | Position.                            | Time<br>of high<br>water<br>on full<br>and<br>change | Rise and Fall.                 | Remarks.        |
|---------------------------|--------------------------------------|--|--------------------------------|-----------------|
| Amoy to the<br>River Min. | Amoy - - - Wooseu - - -              | 9.50   | - - -                          | December.       |
|                           | Ditto - - - Kulangseu - - -          | Noo n  | Rise and fall 20<br>feet 5 in. | November change |
|                           | Ditto - - - Do. - - -                | 11.50  | Do. 16 ft. 9 in.               | November full.  |
| Hoetow Bay                | Hoetow Bay - - - Oyster Island - - - | 11.00  |                                |                 |
| Chimmo Bay                | Chimmo Bay - - - - -                 | 10.20  | 16 feet rise and<br>fall.      |                 |

Between Hoetow and Chimmo Bay the state of the tide will be known by the numerous fishing nets moored off the coast.

|                         |              |       |                           |
|-------------------------|--------------|-------|---------------------------|
| Chinchew Bay -          | Pisai Island | 12.25 | Rise and fall 17<br>feet. |
| Meichow Sound - - - - - |              | 11.00 | 15 feet rise and<br>fall. |

In the upper part of Meichow Sound the tides were found as under in March. Ebb, 1st hour, south 0.7, then S.S.E. 4 hours; amount of tide 4.8 knots; flood N.W. b. N. and N.W., in all 4.6 miles in the tide.

| Place.             | Position.      | Time<br>of high<br>water<br>on full<br>and<br>change | Rise and Fall.                | Remarks.           |
|--------------------|----------------|--|-------------------------------|--------------------|
| Pescadore Islands. | Macon Harbour. | 10:30  | Rise and fall 9<br>feet 6 in. | Pescadore Islands. |

Amongst the Pescadore group, the tides will be found very rapid. Sometimes as much as 4 knots ; during the S.E. monsoon the average amount of one tide (the flood) amounted to 17 miles, while the ebb was scarce perceptible. Tide races are common, and overtop with great violence.

|                  |               |       |                                 |   |                 |
|------------------|---------------|-------|---------------------------------|---|-----------------|
| Lamyit Islands   | Lamyit Point  | 10:30 | Rise and fall<br>about 22 feet. | Flood S.S.E. 1-2<br>knots. Ebb<br>N. b. E. 1. | Lamyit Islands. |
| Hungwha Sound    | -             | 11:00 | Do. about 16 ft.                |   |                 |
| Haetan Straits - | Slut Island - | 6:15  | Do. 21 ft. 6. in.               |   |                 |

The flood-tide will be found to run to the north at the rate of one and sometimes two knots to the westward of the Lamyit Islands, and into the Haetan Straits ; it does not, however, flow through, but is met by the flood from the north end. The effect of this depends in a great measure upon the strength of the wind outside. After passing Flag Island, Haetan Straits, the Plover found great irregularity, both in the direction, and rise and fall.

|                    |            |               |                                 |                           |                             |
|--------------------|------------|---------------|---------------------------------|---------------------------|-----------------------------|
| White Dog Islands. | About 9 m. | - -           | Rise and fall<br>about 18 feet. |                           | White Dog Islands.          |
| River Min          | -          | Temple Point  | 10:15                           | Rise and fall 19<br>feet. | River Min to<br>Wanchowfoo. |
| Ditto              | -          | Losing Island | Noon                            | Do. 18 feet. 7 hours ebb. |                             |

Do not take the Kinpai Pass without a pilot or personal knowledge, and then at slack tide.

Near Rees' Rock the tide veers thus : Flood, 1st and 2d hour, *Rees' Rock.* west; 3d, W.S.W.; 4th, 5th, and 6th, west; Ebb, 1st and 2d, hours, E.S.E.; 3d, 4th, and 5th hours, east; 6th hour, E.N.E. strength of flood, 2 knots; ebb, 1.5; the moon's age, 20 days; wind, easterly 4.

|                 |   |   |      |                           |
|-----------------|---|---|------|---------------------------|
| Changchi Island | - | - | 9:30 | Rise and fall 17<br>feet. |
|-----------------|---|---|------|---------------------------|

Inside of Matsou and Changchi Islands the tides are very *Matsou Islands.* perceptible, there being a great indraft into Tinghae Bay and the northern mouths of the Min with the flood, and the velocity off Ragged Point sometimes amounts to 3 knots per hour.

| Place.        | Position. | Time<br>of high<br>water<br>on full<br>and<br>change | Rise and Fall.            | Remarks. |
|---------------|-----------|--|---------------------------|----------|
| Spider Island | West side | 10'00  | Rise and fall 17<br>feet. |          |

*Samsah Bay.* There is also a great indraft into Samsah Bay. To the north of the middle group the flood came from the E.N.E. at the rate of 1.2 knots per hour, and the ebb from W. b. S. at 1.6 knots per hour; also off Cone Islet the ebb tide averaged 1.4 knots per hour from W. b. S. at neaps.

At the Anchorage inside Samsah Bay the ebb came from the N.N.W. 11.5 knots in a tide. The flood, first three hours E.N.E., then S.E.

|                |        |         |       |                           |
|----------------|--------|---------|-------|---------------------------|
| <i>Fuhyan.</i> | Fuhyan | - - - - | 10'15 | Rise and fall 16<br>feet. |
|----------------|--------|---------|-------|---------------------------|

At the anchorage inside Fuhyan the first of the flood came from the E.S.E. at the rate of 0.6 per hour, then from E.N.E. at 0.4 per hour; the ebb running to the N.E. at 0.6 per hour.

|                              |                   |                           |      |                           |   |
|------------------------------|-------------------|---------------------------|------|---------------------------|---|
| <i>Namquan Bay.</i>          | Namquan Bay       | - - - -                   | 10'0 | Rise and fall 17<br>feet. |   |
| <i>Namki Islands.</i>        | Namki Islands     | - - - -                   | 8'30 | Do. 17 feet.              |   |
| <i>Pehkishan Islands.</i>    | Pehkishan Islands | - - - -                   | 8'30 | Do. 17 feet -             | At this anchorage the ebb made N.N.W., and the flood S.E. b. E. |
| <i>Bullock Harbour.</i>      | Bullock Harbour   | - - - -                   | 8'30 | Do. 17 feet.              |   |
| <i>Wanchewfoo.</i>           | Wanchewfoo city   | - - - -                   | 9'30 | Do. 15 feet.              |   |
| <i>Wanchewfoo to Chusan.</i> | „ entrance        | - - - -                   | 9'00 | Do. 16 feet.              |   |
|                              | Taluk Island      | - - - -                   | 9'20 | Rise and fall 18<br>feet. |   |
|                              | Taichow Group     | S.W. Point of<br>Shangta. | 9'00 | Do. 14 feet.              |   |

At anchor under Taluk Island the flood came from the E.S.E., total amount in the tide 3.5 knots; the ebb N. b. E. two hours, 1.6 knots; north one hour, 1.2 N.N.W. two hours 1.6 knots.

*Chikhok Island.* With Chikhok Island bearing S. b. W., and Heata Island S.E.  $\frac{1}{2}$  E. Flood E. b. S. 0.3 knots, S.E. b. E. 0.5, and E.S.E. three hours, 2.8 knots. The ebb ran S.W. b. W. one knot, W.S.W. 1.2 knots. West  $3\frac{1}{2}$  knots, and W.N.W. 1.4 knots. Under Chuhseu Island the ebb ran to the E.S.E. at the rate of 1.2 per hour, and the flood to the W.N.W. at 1.3. Moon was then twelve days old.

| Place.          | Position.               | Time<br>of high<br>water<br>on full<br>and<br>change | Rise and Fall.                | Remarks.            |
|-----------------|-------------------------|--|-------------------------------|---------------------|
| Sanmoon Bay -   | St. George's<br>Island. | 10:20  | Rise and fall<br>about 15 ft. | Sanmoon Bay.        |
| Montague Island | South side -            | 10:00  | Do. about 16 ft.              | Montague<br>Island. |
| Kweshan Islands | - - -                   | 9:20   | Do. about 13 ft.              | Kweshan<br>Islands. |
| Buffalos Nose * | - - -                   | 9:40   | Do. about 12 ft.              | Buffalos Nose.      |

The ebb-tide out of Sanmoon Bay will be found useful in working to windward, provided the vessel heads up to the northward of N.N.W.

Between the Hieshan and the Kweshan Islands the flood against a strong northerly wind causes an angry sea. At the Kweshan the change in the direction of the stream does not take place until two hours after the change in the depth of water, from hence the flood will sensibly assist a vessel in getting into the Chusan Archipelago.

|                        |       |       |                           |                            |
|------------------------|-------|-------|---------------------------|----------------------------|
| S.E. Passage -         | - - - | 9:40  | Rise and fall 14<br>feet. | S.E. or Vernon<br>Channel. |
| Tinghae Harbour        | - - - | 10:00 | Do. 11 feet.              | Tinghae<br>(Chusan).       |
| Chinkeamun<br>Harbour. | - - - | 11:00 |                           | Chinkeamun<br>Harbour.     |
| Footoo Island -        | - - - | 8:15  | Do. 12 feet.              | Footoo Island.             |

Under Luhwang Island the flood sets to the N.W. at the rate of two knots per hour, and the ebb to the S.E. at 1.6. *Luhwang Island.*

With Hayes Island N.W. b. N., and the remarkable Crag S.W., the flood sets W. b. S. and west, at 1.7 per hour, and the ebb, E.S.E. 1.6. On the change of the moon in Duffields Goughs, and Roberts Passages, the first of the flood often comes from the northward, and sometimes runs in that direction three hours before the tide through the Buffalos Nose Channel overcomes that through the S.E. passages. In Duffields Pass the tide sometimes runs at five knots per hour. In Goughs and Roberts Pass it is not so strong. In the Beak Head Passage four knots is about the maximum; in light winds avoid the Pai Rock, as the flood is apt to set a vessel on it. *Roberts,  
Duffields,  
and Goughs  
Passages.* *Chusan  
Archipelago.*

In the S.E. or Vernon channel, it has been known to run six knots. Off Roundabout Island they are not so violent, but the eddies take command of the ship at spring tides. *S.E. or Vernon  
Channel.  
Roundabout  
Island.*

\* A twenty feet rise has been noted here, but it was by lead line and not by tide pole.

*Tower hill and other channels leading to Tinghae.*

In the Tower Hill Channel, with a strong flood, vessels have been swept away to the westward, and carried by the tide beyond *Just-in-the-way*, and even through the Blackwall channel, and after rounding Tower Hill and entering the Bell Channel; many have been borne by the ebb into the archipelago, between Tower Hill and Tea Island. In these cases the bower anchors and chains should not be used, but a good kedge and stout hawser, which (as the holding ground is good and if care be taken to con the vessel and not break her shear) will bring a ship up and prevent her being driven into these narrow passages; where some have been brought up in from 30 to 40 fathoms water, with two anchors down and three or four round turns in their hawse. Having rounded the north end of Tea Island with a strong ebb, it is necessary to guard against its taking the vessel through the Melville Passage, and if not able to pass to the north of Macclesfield Island, send the boats a-head and endeavour to keep the vessel to the northward of the Sarah Galley Islands, where there is shoal water. In the channel between Bell Island and Chusan, the tide is at times very strong, so much so that on one occasion the *Madagascar* (steamer) had great difficulty in stemming it.

*Blackwall Channel.*

In the Blackwall Channel, the eddies are as strong as they are off Roundabout Island, taking a ship round against both helm and sails. Between Kintang Island, and the Dead-man Island, the velocity is at times four knots per hour.

| Place.            | Position.    | Time of high water on full and change | Rise and Fall.         | Remarks.           |
|-------------------|--------------|---------------------------------------|------------------------|--------------------|
| Sinkon Point -    | Wateo Island | 11.30                                 | Rise and fall 13 feet. |                    |
| Chiniae - -       | Town - -     | 11.20                                 | Do. 12 feet 6.         |                    |
| Ningpo - -        | East Gate -  | 1.00                                  |                        |                    |
| Seshan Island - - | - - .        | 11.45                                 | Do. 14 feet.           |                    |
| Fog Islands - -   | - - -        | - -                                   | Do. 17 feet -          | Velocity 4½ knots. |
| Chapoo Bay - -    | - - -        | noon                                  | Do. 25 feet.           |                    |

*North part of the Chusan Archipelago.*

*Hangchou Bay and the Yangtscheang.* The velocity of the tides increases as Hangchou Bay is approached; in the neighbourhood of Nanho Island, and the Volcano group, the flood runs W. b. N., and the ebb E. b. S., sometimes at the rate of 3 knots; in light winds, unless cared for, vessels are liable to get entangled among the Dunterville

or Volcano groups. At the Fog Islands the velocity increases to  $4\frac{1}{2}$  knots per hour; at Chapoo to 5; and in the S.W. end of Chapoo Bay to 7, with a rise and fall of 35 feet. Twenty-five miles above Chapoo, the tide at springs was found to run  $11\frac{1}{4}$  knots per hour, and at neaps 8 knots, with a rise and fall of 40 feet. In the vicinity of the outer Seshan Islands, and the Rugged group, the flood will be found to run at  $2\frac{1}{2}$  and 3 knots; and to the southward of Gutzlaff Island the first of the flood makes to the southward of west.

| Place.           | Position.   | Time<br>of high<br>water<br>on full<br>and<br>change | Rise and Fall.            | Remarks.               |
|------------------|-------------|--|---------------------------|------------------------|
| Lansew Bay -     | - - - -     | 10° 00   | Rise and fall 13<br>feet. | <i>Lansew Bay.</i>     |
| Saddle islands - | East Saddle | 11° 00   | Do. 14 feet.              | <i>Saddle Islands.</i> |
| Amherst rocks    | - - - -     | 11° 30   | Do. 15 feet.              | <i>Amherst rocks.</i>  |
| Woosung          | - - - -     | 12° 40   | Do. about 17ft.           | <i>Woosung.</i>        |
| Shanghae         | - - - -     | 1° 00  | Do.                       | <i>Shanghae.</i>       |

Between Laoush and Onsha Islands the flood ran W. b. S. *S.E. part of the Chusan Archipelago.* 2 knots per hour, the ebb E.S.E. 1·4 knots; the moon was then 18 days old. In the channel between Onsha and Chookea Islands, H.M. Steamer Vixen, with the Cambrian in tow, could not stem the ebb.

With Lansew Island bearing west 5 miles, the flood ran to the W.N.W. the first hour, then N.W.; total amount of tide 11·1 knots. The ebb, S. E. b. S. the whole tide; total amount 5·7 knots.

Off the mouth of the Yangtsekeang river, with Shaweishan Island bearing N.E. b. E., on the first day of the moon the cbb ran to the S.E. 20·1 knots on the whole tide; the flood, commencing at N.N.W., then W.N.W., afterwards N.W., ran only 10 miles. On the following tide the amount of cbb amounted to 21 miles, and the flood to 16 miles: this was in the month of October.

#### GENERAL REMARKS ON MAKING PASSAGES IN THE NORTH PART OF THE CHINA SEA.

339. It has been observed that in the Sailing Directions hitherto issued for the coast of China, no information has been afforded relative to making passages. There is no doubt that

this is a great desideratum, but it is only to be acquired by experience; nor can a surveying vessel that is loitering along the coast afford anything like the information that is to be obtained by those who are constantly going to and fro. What therefore is now afforded on this subject must be considered more as a contribution towards better information, and may be useful to a stranger.

*Passage to the  
east of Formosa  
in the N.E.  
monsoon.*

340. In proceeding from Hongkong to Ningpo, or Shanghai, or even to Foochowfoo during the N.E. monsoon, the general practice is to work along the coast as far as Breaker Point, and then stretch across to the south end of Formosa, and work up to the eastward of that Island. By remaining in with the coast of China, vessels have the advantage of smoother water, and the ebb-tide out of the deep bays, which will generally be under their lee on the starboard-tack; and in the event of its blowing too hard to make way, there are numerous convenient anchorages.\* By passing to the east of Formosa Island, also the troublesome short sea in the Formosa Channel is avoided, as well as the constant set to the southward during the season. A table is annexed containing the set of the current in one passage that the Plover made, by which it will be seen that vessels must be prepared to find the difference between the reckoning and observation to amount sometimes to 40 miles a day, and it will be found advisable not to close the shore within 6 miles, as there was generally found a set to the southward inshore. There are no harbours on this side, and deep water will be found close in to the land: the mountains rise almost immediately from the sea; the sides of them in some places were cultivated, and a good many houses seen. Only

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\* Vessels bound up the China Sea during the N.E. monsoon, should anchor during the night to avoid being swept to the southward, whilst on the off shore tack, it being advisable to keep within 10 miles of the coast, which cannot be done during the night without great risk.

H.M.S. Reynard has been in company with vessels, which by keeping under sail at night, were in the morning several miles to leeward of her anchorage.—*Hy. McAusland, Master, H.M.S. Reynard, Remark Book for 1850.*

Commander W. G. Luard, H.M. Sloop Serpent, recommends vessels in beating up the coast of China during the N.E. monsoon, to anchor at night; the winds in the middle watch generally coming more off the land would enable a vessel to make a good stretch on the off shore tack.—*Remark Book, H.M.S. Serpent, 1850.*

two natives were communicated with, and they had apparently no traffic whatsoever with the Chinese. On the other side of the Island the Plover anchored on an uneven bottom, the ship swinging from 13 to 22 fathoms in Black Rock Bay, and rode out a gale of wind from the S.W.; but it is by no means to be recommended. Towards the north end of the Island there is a small bay (Soao), in  $24^{\circ} 37' N.$ , and  $121^{\circ} 54' E.$ , where a ship might anchor; and here the Chinese have an establishment, and boats will be seen, which were not observed anywhere else along the coast after leaving the first sandy bay north of the south end of the island.

341. Table, showing the current experienced by H.M.S. "Plover" to the east of Formosa:—

| Date.<br>1845. | Lat.<br>N. | Long.<br>E. | Winds.     |         | Current.  | Remarks. |
|----------------|------------|-------------|------------|---------|---|----------|
|                |            |             | Direction. | Force.  |   |          |
| 14th July      | 20 50      | 116 15      | S.W.       | 5, 8    | N. $47^{\circ}$ E. $22'$  | —        |
| 15th "         | 21 3       | 118 55      | S.W.       | 8, 9, 5 | N. $37^{\circ}$ E. $8'$   | —        |
| 16th "         | 21 52      | 121 4       | S.W.       | 7, 5, 2 | N. $55^{\circ}$ E. $28'$  | —        |
| 17th "         | 22 41      | 121 0       | S.W.       | 3, 7, 6 | N. $25^{\circ}$ W. $27'$  | —        |
| 20th "         | 23 15      | 121 46      | variable   | 1, 3, 1 | N. $65^{\circ}$ E. $17'$  | —        |
| 21st "         | 23 40      | 121 44      | North.     | 1       |   |          |
|                |            |             | { N.E.     | 2       | N. $23^{\circ}$ E. $32'$  | —        |
|                |            |             | { N.W.     | 1       |   |          |
| 22nd "         | 23 47      | 121 47      | { N.W.     | 1, 2    | N. $13^{\circ}$ E. $23'$  | —        |
|                |            |             | { N.E.     | 1       |   |          |
| 23d "          | 24 6       | 121 38      | { West.    | 1       | Current in-shore setting strong to the south, off-shore to the N.E.             |          |
|                |            |             | { S.E.     |         |   |          |
|                |            |             | { West.    |         |   |          |
| 24th "         | 24 3       | 121 53      | { W.N.W.   |         |   |          |
|                |            |             | { West.    | 1       | N. $30^{\circ}$ W. $8'$   | —        |
| 25th "         | 24 23      | 121 54      | { N.N.E.   | 3       |   |          |
|                |            |             | { N.W.     | 6, 8    | N. $26^{\circ}$ E. $28'$  | —        |
| 26th "         | — — —      | — — —       | { N.N.W.   | 7       |   |          |
|                |            |             | { S.E.     | 10      | —   | —        |
| 27th "         | 25 37      | 123 5       | { S.E.     | 10, 7   | N. $42^{\circ}$ E. $112$ miles in 48 hours.                                     |          |
|                |            |             | { S.E.     | 5       | Current setting to the south, at the rate of $2\frac{1}{2}'$ per hour in-shore. |          |
| 28th "         | 24 54      | 122 11      | { S.W.     | 4       |   |          |
|                |            |             | { S.W.     | 3       |   |          |
| 29th "         | 24 38      | 122 1       | { N.N.W.   | 2       |   |          |
|                |            |             | { North.   | 1       | —   | —        |
|                |            |             | { N.E.     | 2       |   |          |
|                |            |             | { N.E.     | 4       |   |          |
| 30th "         | — — —      | — — —       | { N.W.     | 1       | —   | —        |
|                |            |             | { N.W.     | 7       |   |          |
| 31st "         | 24 50      | 122 18      | { N.W.     | 7, 9    | East 12   | —        |
|                |            |             | { North.   | 10      |   |          |
|                |            |             | { West.    | 4       | —   | —        |
|                |            |             | { West.    | 10      |   |          |
| 1st Aug.       | — — —      | — — —       | { West.    | 10      |   |          |
|                |            |             | { South.   | 7       |   |          |
| 2nd "          | 25 10      | 122 43      | { S.E.     | 5       | N. $50^{\circ}$ E. $73'$ in 48 hours.   |          |

*Currents on the eastern side of Formosa.*

342. Having weathered the north end of Formosa, it is still *From the north end of Formosa to Chusan, &c.* advisable to keep to the eastward, and not approach the continent until the parallel of  $30\frac{1}{2}^{\circ}$  N. is gained. Should, however,

a vessel be driven to the westward, she can always calculate on smooth water, and being able to tide it through the southern part of the Chusan archipelago; and if disabled and in want of spars, she can remain at the southern side of the Duffield passage, and supply herself from the Foochow wood junks.

343. ASTRONOMICAL POSITIONS on the East and North Coast of FORMOSA.

| Place.                          | Latitude.<br>N.     | Longitude.<br>E. | Remarks. |
|---------------------------------|---------------------|------------------|----------|
| Samasanna - - - - -             | 22.41               | 121.28           |          |
| Double Peak - - - - -           | 22.50               | 121.12           |          |
| Black Rock Bay - - - - -        | 23.6                | 121.24           |          |
| River Entrance* - - - - -       | 23.89               | 121.29           |          |
| Rocks off Soao - - - - -        | 24.37 $\frac{1}{2}$ | 121.54           |          |
| Steep Island E. point - - - - - | 24.51               | 121.59           |          |
| East Point Formosa - - - - -    | 25.2                | 122.2            |          |
| N.E. Point - - - - -            | 25.8                | 121.57           |          |
| Dome Peak - - - - -             | 25.7                | 121.53           |          |
| Kelung Island - - - - -         | 25.12               | 121.49           |          |
| Kelung Harbour - - - - -        | 25.9                | 121.47           |          |
| Peninsula Point - - - - -       | 25.13               | 121.44           |          |
| Taki Point - - - - -            | 25.19               | 121.37           |          |
| Agincourt Island - - - - -      | 25.38               | 122.8            |          |
| Crag Island - - - - -           | 25.29               | 122.9            |          |

*Positions on the east and north sides of Formosa.*

*Breaker Point towards Namo.*

344. Vessels bound to Amoy, and the opium ports between that place and the River Min, will generally find a difficulty in getting round Breaker Point; the tide here is of no use, and all there is to assist is the likelihood that the wind will draw off the land after midnight, when, by being inshore, a good board can be made, and possibly the Cape of Good Hope reached. Haimun Roads cannot be recommended, but still it would be better to go in there than to be carried round the point. In this case, should the West Hill be obscured, run in under the point, lower a boat, and let her find the sunken rock (see article 83), and then come in with good way to windward of Parkyns' Rock (if drawing less than 13 feet), and shoot up round the boat into Fort Bay.

*Namo Island to Amoy.*

345. Having reached the Cape of Good Hope, the flood will help a vessel round it, and the ebb out of Han River will be a weather tide; in the latter case, and not intending to go inside of Namo Island, endeavour to get along the south side of the island, where there is an eddy tide, and anchorage in

South Bay, should the weather prove too bad to proceed on the flood: both tides will be found strong off Three Chimney Point, and the same may be said of Jokako Point, round which vessels should take the first of the flood on port tack.

346. Farther to the northward about Rees' Island, the flood tide causes an uneasy sea in strong breezes which will distress a vessel much. Red Bay and Tinghae will be found good stopping places; and the latter should be preferred, though at the loss of two or three miles, to anchoring in an exposed position off the Six islands; as when the N.E. breezes freshen off here on the flood, they generally bring a mist in with them, which makes it difficult to see your way through them into Amoy, and at the same time vessels will have trouble to get out of the bay against the tide.

347. To the north of Amoy are Leolou, and Haetow Bay, *Amoy to Haetow.* both of which afford good shelter: Chimmo Bay is not so good; but with good ground tackle, and plenty of it, vessels can ride here. The current in the monsoon overcomes the tide here; and advantage must be taken of every slant of wind, bearing in mind that it is likely to draw off the land in the middle watch, and in the event of anchoring for shelter this is the time to start, should the wind moderate: by waiting for daylight vessels lose their offing, and will have to make an off-shore board at a loss. The fogs here are at times very thick, but the lead is not a bad guide, as the soundings generally change from sand to mud as the shore is approached. There is also fair anchorage under Pyramid Point, but not so good as that under the South Yit; and if the vessel is looking up north or anything east of it, the ebb out of Meechow Sound will be of assistance.

348. From the Lamyit Islands or the south end of Haetan *Haetan to the Min.* Straits to the White Dogs, is beyond a doubt the most difficult part of the passage. Should screw steamers be introduced into the trade, no doubt the straits will afford the best passage; but square-rigged vessels without that aid should decidedly keep outside, and stretch over to the coast of Formosa, where they are likely to get a slant of wind; and this portion of the island (although affording no harbour for anything

above 11 feet draught, except Kelung) has been surveyed, and is laid down accurately, so that by attention to the soundings no vessel can come to any harm.

*The Min to Chusan.*

349. North of the Min River the ebb is generally a weather tide (unless the wind is far to the north), and out of the river, Tinghae and Samsah Bays, vessels will get a good lift; with the flood, the indraft into the latter will be sensibly felt as far out as Larne Islet, and increases to 2 and 3 knots as the main is closed. As a general rule, tack for the inshore tide, when by the Nautical Almanack (page iv.) the moon is on the meridian.

Tungying Island will be found a snug anchorage, and here the coast should be forsaken (unless in a vessel under 12 foot draught), and the deep water to the eastward kept in: the tide will be found to afford but little assistance until the vessel arrives at the Chusan Archipelago; the flood causes an uneasy sea in the shallow water, while the ebb has too much southing in it, unless the wind is to the eastward of E.N.E.; but Namki and Pihki Islands will afford good shelter.

*Chusan Archipelago.*

350. On reaching the Chusan Archipelago, vessels should take the Beak Head Channel unless the tide is nearly done, in which case they have Harbour Rouse and the south side of Luhwang Island as anchorages under their lee; and as the first of the ebb runs to the northward through the Foto Channels, the tide through may be saved, and anchorage gained on the Ketow shore. From hence, if bound to Tinghae, contrive to arrive at the west end of Tower Hill Island, about slack water; otherwise in light winds vessels are liable to be carried off to Just-in-the-Way Rock, and even through the Blackwall Channel.

In working through the north part of the Chusan Archipelago, as the set of the ebb and flood trends nearly E. and W., advantage can always be taken of the tide, and vessels may count on feeling the influence of the ebb within an hour of the moon's meridian passage (page iv. Nautical Almanac). When in the vicinity of Gutzlaff Island, the first of the flood takes a direction to the southward of west, running into Hanchow Bay.

The eddy tide, generally speaking, will carry a vessel clear of the large islands; but when they are approaching detached

rocks, great attention is required to prevent being carried in amongst them.

351. With regard to the southerly monsoon, no difficulty *S.W. Monsoon.* will be found in getting down against it, as it is not so permanent in its direction as the other, and land and sea breezes prevail; the current will be found running strong to the northward in the Formosa Channel, but vessels are not liable to the same detention which they often experience in the other monsoon. Care, however, must be taken not to overshoot the port. Fogs are very prevalent in the early part of the season, and render the navigation at times as harassing as it is in the other monsoon; they, however, generally lift in the vicinity of the land, and a ship's length from where the bowsprit can hardly be seen will carry her into sunshine.

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## 352. GENERAL TABLE of the Courses and Distances from Headland to Headland.

| From.   | To.                               | Course and distance.                        | References. | Remarks.  |
|---|-----------------------------------|---|-------------|---|
|   |                                   |   | Article.    |   |
| <i>Courses and distances along the Coast.</i>             |                                   |   |             |   |
| <i>Chart. Sheet II.</i>                                   |                                   |   |             |   |
| Hongkong Island, S. point of Tumtoo Island.               | Ninepin Rock                      | E. b. N. 44 m. -                            | 1           | With the flood there will be an indraft into Rocky Harbour and Mers Bay. Care should be taken to avoid the sunken rocks S. $\frac{1}{2}$ W. not quite 7 cables' lengths from the east Ninepin Rock. |
| Sunken rock S. $\frac{1}{2}$ W. of the east Ninepin Rock. | Sanmun Road                       | N.E. $\frac{1}{2}$ E. 18 $\frac{1}{2}$ -    | 8 to 38     |   |
|   | Single Island                     | N.E. b. E. $\frac{1}{2}$ E. 19              | 8. 39       | —   |
|   | Pedro Blanco                      | E. $\frac{1}{2}$ N. 42 $\frac{1}{2}$ -      | 8. 57       | —   |
|   | Siki Rock                         | E.N.E. $\frac{1}{2}$ E. 82 $\frac{1}{2}$    | 8. 73       | —   |
|   | Tonghi Rock                       | E.N.E. $\frac{1}{2}$ E. 86 $\frac{1}{2}$    | 8. 73       | —   |
| Single Island   | Mendoza Island                    | N.E. b. E. 11 $\frac{1}{2}$ -               | 39. 52      | —   |
| Mendoza Island  | Pedro Blanco                      | S.E. $\frac{1}{2}$ E. 19 $\frac{1}{2}$ -    | 52. 57      | —   |
|   | Whale Rock                        | East 9 $\frac{1}{2}$ -                      | 52. 58      | —   |
|   | Paul Piah                         | E. b. N. 10                                 | 52. 58      | —   |
| Pauk Piah   | Goat Island                       | E.N.E. $\frac{1}{2}$ E. 23 $\frac{1}{2}$    | 58. 69      | —   |
|   | Reef Islands                      | E. $\frac{1}{2}$ N. 20 $\frac{1}{2}$ -      | 58. 70      | —   |
| Reef Islands  | Siki Island                       | E.N.E. $\frac{1}{2}$ E. 16 $\frac{1}{2}$    | 70. 73      | —   |
|   | Turtle Rock, (Cupchil Point).     | E.N.E. $\frac{1}{2}$ E. 17 $\frac{1}{2}$    | 73. 75      | —   |
| <i>Chart. Sheet III.</i>                                  |                                   |   |             |   |
| Turtle Rock   | Tungao Road                       | N.E. b. E. 15 $\frac{1}{2}$ -               | 77. 79      | —   |
| Ditto   | Flat Reef, part of Breaker Point. | E.N.E. $\frac{1}{2}$ E. 22                  | 77. 81      | —   |
| Pedro Blanco  | Ditto                             | N.E. b. E. $\frac{1}{2}$ E. 83              | 87. 81      | —   |
|   | South end of Formosa.             | E. b. S. 330 -                              | 87. —       | —   |
| Breaker Point   | Cape of Good Hope                 | N.E. 25 -                                   | 81. 85      | This course will place a vessel on the rocks off shore E. of Breaker Point.   |
|   | Boat Rocks, Lamock Islands.       | E.N.E. $\frac{1}{2}$ E. 45 $\frac{1}{2}$    | 81. 101     | —   |
|   | South end of Formosa.             | E.S.E. $\frac{1}{2}$ E. 260                 | 81. —       | —   |
| Cape of Good Hope   | Boat Rocks, Lamock Islands.       | E. $\frac{1}{2}$ S. 24 $\frac{1}{2}$ -      | 85. 101     | —   |
|   | Baylis Bay Namoa Island.          | N.E. b. N. 14 $\frac{1}{2}$                 | 85. 93      | This course will take a vessel on the knolls to the S.W. of Namoa Island.   |
|   | North Lamock                      | E. $\frac{1}{2}$ N. 29 $\frac{1}{2}$ -      | 85. 101     | —   |
| North Lamock  | North Point Namoa                 | N.W. $\frac{1}{2}$ N. 16 $\frac{1}{2}$ -    | 94. 102     | —   |
|   | Brothers                          | N.E. b. E. 25 $\frac{1}{2}$ -               | 102. 116    | —   |
| South Brothers  | Lighthouse (Pescadores).          | East 91.                                    | 110. 178    | —   |
| <i>Chart. Sheet IV.</i>                                   |                                   |   |             |   |
| Ditto   | Thunder Head (Tongsang Harbour).  | N.N.W. $\frac{1}{2}$ W. 12 $\frac{1}{2}$    | 110. 111    | —   |
| N. Point Namoa  | Chapel Island                     | N.E. $\frac{1}{2}$ N. 47                    | 110. 126    | —   |
| Diyou Rock  | Diyou Reef                        | N.E. b. E. $\frac{1}{2}$ E. 5 $\frac{1}{2}$ | 94. 103     | —   |
|   | Owick Bay                         | E.N.E. $\frac{1}{2}$ E. 9 $\frac{1}{2}$     | 103. 108    | —   |
| Ditto   | Bell Island                       | E. $\frac{1}{2}$ N. 12                      | 103. 109    | —   |
| Bell Island   | Cliff Island                      | E. N. E. 24                                 | 109. 109    | —   |
| Cliff Island, south                                       | Brothers                          | E. b. S. 13                                 | 109. 110    | —   |
| Ditto   | Thunder Head                      | N.E. $\frac{1}{2}$ N. 11 $\frac{1}{2}$      | 109. 111    | —   |
| Ditto   | Rees Islands                      | N.E. $\frac{1}{2}$ E. 18                    | 109. 115    | —   |
| Thunder Head  | Rees Rock                         | N.E. $\frac{1}{2}$                          | 109. 115    | —   |
| Ditto   | Rees Islands                      | E.N.E. 7 $\frac{1}{2}$                      | 111. 115    | —   |
| Rees Islands  | Simplicia Rock                    | N.E. $\frac{1}{2}$ E. 14                    | 111. 117    | —   |
| Simplicia Rock  | Knob Rock                         | N.E. $\frac{1}{2}$ N. 10 $\frac{1}{2}$      | 117. 122    | —   |
| Knob Rock   | Chapel Island                     | N.E. $\frac{1}{2}$ E. 24 -                  | 122. 126    | This course takes a vessel close to the south Merope shoal.   |
| Ditto   | Red Bay                           | N. $\frac{1}{2}$ E. 6                       | 122. 124    | —   |
| Cork Point, Red Bay.                                      | Lamitia Island                    | N.E. $\frac{1}{2}$ N. 9                     | 124. 125    | —   |
| Lamitia Island  | Tingtae Bay                       | N.N.E. $\frac{1}{2}$ E. 6 $\frac{1}{2}$     | 125. 127    | —   |
| Table Head, Ting-tae Bay.                                 | Chinha Point                      | N.E. b. E. 3                                | 127. 128    | —   |

| From.                  | To.                    | Course and distance.                         | References.                                  | Remarks.   |
|------------------------|------------------------|--|--|--|
| Chinha Point           | -                      | Chauchut Rocks, entrance to Amoy             | N. b. E. $\frac{1}{2}$ E. 4 $\frac{1}{2}$    | Article, 127, 128  |
| Chapel Island          | -                      | Chauchut Rocks -                             | N.N.W. 11 $\frac{1}{2}$                      | 128, 128   |
| Chauchut Rocks         | -                      | Amoy outer harbour.                          | N.W. $\frac{1}{2}$ N. 7                      | 128, 131   |
| Chapel Island          | -                      | Ocksen Island                                | N.E. b. E. 83                                | 126, 164   |
| Ditto                  | -                      | Lighthouse (Pescadores)                      | S.E. b. E. $\frac{1}{2}$ E. 74               | 126, 178   |
| Ditto                  | -                      | South Point (Formosa)                        | S.E. 210                                     | 126. —   |
| Ditto                  | -                      | Dodd's Island                                | N.E. $\frac{1}{2}$ N. 21                     | 126, 140   |
| Tingseu Island (Amoy). | S. end of Quemoy Bank. | East 8                                       | 128, 134                                     | Great care must be taken of the reef to the N.E. of Dodd's Island. |
| S. end of Quemoy Bank. | Leolou Head            | E.N.E. $\frac{1}{2}$ E. 8 $\frac{1}{2}$      | 134, 135                                     | —  |
| Dodd's Island          | -                      | Hooetow Point                                | N.E. $\frac{1}{2}$ N. 6 -                    | 140, 136   |
| Ditto                  | -                      | Scrag Point                                  | N.E. $\frac{1}{2}$ E. 10 $\frac{1}{2}$       | 140, 144   |
| Scrag Point            | -                      | Pyramid Point                                | N.E. 26 $\frac{1}{2}$                        | 144, 155   |
| Pyramid Point          | -                      | Passage Island                               | W.S.W. $\frac{1}{2}$ W. 8 $\frac{1}{2}$      | 155, 149   |
| Ditto                  | -                      | Sorrel Rock                                  | N.E. $\frac{1}{2}$ E. 15                     | 155, 160   |
| Ditto                  | -                      | South East Ockseu Island                     | E. b. N. $\frac{1}{2}$ N. 28                 | 155, 164   |
| Sorrel Rock            | -                      | Loutz Rock                                   | N.E. b. E. $\frac{1}{2}$ E. 11 $\frac{1}{2}$ | 160, 163   |
| Ockseu Island          | -                      | Table Hill (Formosa)                         | E. $\frac{1}{2}$ S. 83                       | 161. —   |
| Ditto                  | -                      | Loutz Rock                                   | N.W. b. N. 9 $\frac{1}{2}$                   | 161, 163   |
| North ditto            | -                      | South Yit                                    | N.N.E. 10 $\frac{1}{2}$                      | 164, 165   |
| Ditto                  | -                      | Reef Island                                  | N.E. 25 $\frac{1}{2}$                        | 164, 172   |
| Ditto                  | -                      | Turnabout                                    | N.E. 38 $\frac{1}{2}$                        | 164, 173   |
| Reef Island            | -                      | Turnabout Islands                            | N.E. $\frac{1}{2}$ E. 12 $\frac{1}{2}$       | 172, 173   |
| Turnabout Island       | -                      | White Dog Islands                            | North 32                                     | 173, 201   |
| Ditto                  | -                      | Alligator Island                             | N.N.E. $\frac{1}{2}$ E. 50                   | 173, 219   |
| Ditto                  | -                      | Syauki Point (Formosa)                       | E. $\frac{1}{2}$ S. 86                       | 173. —   |
| Ditto                  | -                      | Paissa Mount, nearest point of Formosa       | E.S.E. 63                                    | 173. —   |
| White Dogs             | -                      | River Min Entrance                           | N.W. $\frac{1}{2}$ N. 9                      | 201, 203   |
| Min Reef               | -                      | N.W. end of Matsou Island.                   | N.E. $\frac{1}{2}$ E. 6                      | 203, 214   |
| Ditto                  | -                      | Diplo Island                                 | N.N.E. $\frac{1}{2}$ E. 19                   | 208, 218   |
| Matsou, N.E. Island.   | -                      | Larne Rock                                   | E.N.E. 13                                    | 214, 220   |
| Larne Rock             | -                      | Tungying Islands                             | E.N.E. 15 $\frac{1}{2}$                      | 220, 222   |
| Alligator Island       | -                      | Ditto, South Point                           | N. b. E. $\frac{1}{2}$ E. 13 $\frac{1}{2}$   | 219, 222   |
| Tungying Islands       | -                      | E. Namki                                     | N.N.E. $\frac{1}{2}$ E. 72                   | 222, 236   |
| Diplo Island           | -                      | Black Rock                                   | E. b. N. 5 $\frac{1}{2}$                     | 218, 221   |
| Black Rock             | -                      | Larne Island                                 | E.S.E. $\frac{1}{2}$ E. 7                    | 221, 220   |
| Larne Island           | -                      | Tungying Islands                             | E. $\frac{1}{2}$ N. 13 $\frac{1}{2}$         | 220, 222   |
| Tungying Islands       | -                      | Double Peak Islands.                         | N.W. $\frac{1}{2}$ W. 21 $\frac{1}{2}$       | 222, 226   |
| Ditto                  | -                      | N.E. Pihseang                                | N. b. W. 18                                  | 222, 228   |
| N.E. Pihseang          | -                      | East point Fuhyan                            | North 14 $\frac{1}{2}$                       | 228, 228   |
| Ditto                  | -                      | Dangerous Rock                               | N.E. $\frac{1}{2}$ E. 14 $\frac{1}{2}$       | 228, 229   |
| Dangerous Rock         | -                      | Straw Stack                                  | N.E. b. E. $\frac{1}{2}$ E. 73               | 229, 230   |
| Ditto                  | -                      | Incog Islands                                | N.W. $\frac{1}{2}$ W. 6                      | 229, 230   |
| Incog Islands          | -                      | Pihuan Harbour                               | North 11 $\frac{1}{2}$                       | 230, 232   |
| Straw Stack            | -                      | Seven Stars                                  | N.E. $\frac{1}{2}$ E. 10 $\frac{1}{2}$       | 230, 231   |
| Seven Stars            | -                      | Castellated Rock                             | N.N.E. 17 $\frac{1}{2}$                      | 231, 231   |
| Castellated Rock       | -                      | Turret Island                                | N. $\frac{1}{2}$ W. 6 $\frac{1}{2}$          | 231, 231   |
| Turret Island          | -                      | Tungpwan Islands                             | N. $\frac{1}{2}$ E. 12                       | 231, 237   |
| E. Namki Islands       | -                      | E. Pilki Islands                             | N.N.E. $\frac{1}{2}$ E. 10                   | 236, 237   |
| E. Pihkisan Islands    | -                      | Coin Islet                                   | N. $\frac{1}{2}$ E. 12 $\frac{1}{2}$         | 237, 240   |
| Ditto                  | -                      | Heachu, S.E. Island of the Tai-chow Islands. | N.E. $\frac{1}{2}$ N. 59                     | 237, 248   |
| Coin Islet             | -                      | Peshaw Islands                               | N.E. $\frac{1}{2}$ E. 20 $\frac{1}{2}$       | 240, 245   |
| Peshaw Islands         | -                      | Soudan Islands                               | N.E. $\frac{1}{2}$ N. 15 $\frac{1}{2}$ -     | 245, 246   |

Chart.  
Sheet V.Chart.  
Sheet VI.Chart.  
Sheet VII.

This course will take a vessel too close to the stragglers.

| From.  | To.  | Course and distance.  | References.  | Remarks.   |
|--|--|---|--|--|
| Soudan Island<br>Chikhok Island  | Chikhok Islands -<br>Hieshan Islands   | North 64<br>N.E. $\frac{1}{2}$ N. 39 $\frac{1}{2}$  | Article.<br>246, 247<br>247, 251                         | —<br>This course will carry a vessel half a mile to the westward of North Taechow Island.  |
| Chart.<br>Sheet VII.   | Heachu Island -<br>Hieshan Island  | Hieshans -<br>Kweshan Islands   | N.N.E. $\frac{1}{2}$ E. 32 $\frac{1}{2}$<br>North 30     | 248, 251<br>251, 259   |
| Chart.<br>Sheet VIII.  | Hieshan Island   | Two Brothers Rocks.   | N.N.E. 87 - -  | 251, 312   |
| N.E. Kweshan<br>Ditto<br>Ditto<br>Foto Channel<br>West end of Beak Head Channel.<br>West end of Vernon Channel.<br>Roundabout Island | Starboard Jack -<br>Beak Head -<br>Tongting Island -<br>Roundabout Island<br>Ditto - - - | N.W. $\frac{1}{2}$ W. 9 $\frac{1}{2}$<br>N. $\frac{1}{2}$ E. 14 -<br>N.E. b. N. 30<br>N.E. $\frac{1}{2}$ N. 10 $\frac{1}{2}$<br>N. $\frac{1}{2}$ E. 6 | 261, 262<br>261, 273<br>261, 312<br>266, 277<br>273, 277 | —<br>—<br>—<br>—<br>—  |
| Ditto  | N.W. b. N. 5   |   | 274, 277   | —  |
| Melville Channel -<br>S. Point of Tower Hill Island.   | Melville Channel -<br>S. Point of Tower Hill Island.                                     | N.W. b. N. 4<br>W.N.W. $\frac{1}{2}$ W. 6 $\frac{1}{2}$   | 277, 281<br>277, 281                                     | This takes a vessel close to the north point of Ketow.                                     |
| S. Point of Tower Hill Island.   | N. Point of Tygosan Insular Point.   | W.N.W. 4  | 278, 297   | —  |
| N. Point of Tygo-<br>san.  | Just-in-the-Way -  | W. $\frac{1}{2}$ N. 3 $\frac{1}{2}$   | 297, 297   | —  |
| Just-in-the-way -  | South Point of Kintang.  | W. $\frac{1}{2}$ N. 2   | 297, 297   | —  |
| S. Point of Kintang  | Tscole, or Square Island.  | W.N.W. 5 $\frac{1}{2}$ - -  | 290, 299   | This course takes a vessel over the Blonde Rock and the rocks to the S.E. of Tscole.       |
| Tscole - - -   | West Rock of Vol-<br>cano Group.   | N.b. E. $\frac{1}{2}$ E. 20 $\frac{1}{2}$   | 299, 304   | —  |
| W. Rock off Vol-<br>cano Group.  | S.W. Horn of Rugged Islands  | N.N.E. 15 $\frac{1}{2}$   | 304, 307   | —  |
| Tongting Island -<br>Ditto   | Video Island -<br>Two Brothers -   | N.N.E. $\frac{1}{2}$ E. 19<br>N.E. 23 $\frac{1}{2}$   | 312, 296<br>312, 312                                     | —<br>—   |
| Two Brothers -<br>Ditto  | Leuconna Island -<br>S.E. Point of Chin-<br>san.   | North 14 $\frac{1}{2}$<br>N.W.b.V. $\frac{1}{2}$ W. 14 $\frac{1}{2}$  | 312, 316<br>312, 316                                     | —<br>—   |
| Ditto  | Senhouse Island -  | N.W. b. N. 33 $\frac{1}{2}$   | 312, 318   | —  |
| Leuconna Island -  | E. Saddle Island -   | N.N.W. 17   | 316, 317   | —  |
| Barren Island -  | E. Saddle Island -   | W. $\frac{1}{2}$ S. 15 $\frac{1}{2}$  | 312, 317   | —  |
| Ditto  | N. Saddle -  | W.N.W. $\frac{1}{2}$ W. 24  | 312, 317   | —  |
| N. Saddle -  | Gutzlaff Island -  | W. $\frac{1}{2}$ S. 25  | 317, 309   | —  |
| Ditto  | Amherst -  | N.W. $\frac{1}{2}$ N. 26 $\frac{1}{2}$  | 317, 310   | —  |
| Gutzlaff - -   | N.W. Horn of Ruggeds.  | S.W. $\frac{1}{2}$ S. 12 $\frac{1}{2}$ -  | 309, 307   | This will take a vessel rather close to the Nine Foot Patch, E.N.E. of the Hen and Chicks. |
| Gutzlaff<br>Ditto  | Amherst Rocks -<br>1st course into the Yangtsekeang.                                     | N.N.E. 25 $\frac{1}{2}$<br>North 16   | 309, 310<br>309, 310                                     | —<br>—   |
| Ditto  | 2d course - -  | N.W. b. W.  | 309, 310   | —  |
| Amherst Rocks -  | 1st course into the Yangtsekeang.  | W.S.W. $\frac{1}{2}$ W. 14  | 310, 310   | The flood tide is likely to set the vessel to the northward.                               |
| Ditto  | 2d ditto - -   | N.W. b. W. 15   | 310, 310   | —  |
| Ditto  | Ariadne Rock -   | W.b. S. 7 $\frac{1}{2}$   | 310, 310   | —  |

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## APPENDIX TO CHINA PILOT.

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### No. 1.

#### LUZON, NORTH COAST.

352. POINT Cavnaian, or Punta Alta de Bangui, according *Point* to Horsburgh, has a reef projecting about a mile out, and is *Cavnaian*, the northernmost land of Luzon.

Point Caravallo is a bluff, steep point of white cliffs, bearing about E. b. S.  $3\frac{1}{2}$  or 4 leagues from Point Cavnaian, having a mass of high mountains contiguous, which go by the same name. Close to the point there is an islet, and other islets lie near the shore, about  $1\frac{1}{2}$  or 2 miles to the eastward. About 4 leagues eastward from Point Caravallo there is a round hill of middling height, called Pata Point, or Cabicunga; and the whole of the coast from Cape Bojeador to this place is steep, without any soundings near the shore.

353. The land is of moderate height, and in some parts rather low close to the sea, with several rivers, but the country inland is high and mountainous. The coast of Cagayan from Point Cabicunga to Cape Engaño, forms a deep bay, with a chain of mountains inland, and a considerable space of moderately elevated or rather low land fronting the sea, which is interspersed with villages and intersected by rivers in several places. There is a continued beach along this coast with regular soundings, and similar depths extend 3 or 4 miles off shore when farther to the eastward. The only known danger is a *Danger*. sand bank on which the sea breaks in blowing weather. This bank is about 2 miles N. b. E. from the bar of Abulu River, and fronting the point to the westward of the river, the west end of it bearing about south from the middle of the island Juga; it extends E.S.E. and W.N.W. about 2 miles; and about a mile outside of it there are from 35 to 40 fathoms water, fine black sand. The entrance of the great river Tajo, about

[c.]

N

4½ leagues eastward of Abulu River, has good anchorage in 10 or 11 fathoms, about 2 miles N.N.E. from its mouth. The point on the S.E. side is known by the church and convent of the town of Apari built on it; opposite to which is the best anchorage, with the volcanic mountain on Camiguin bearing N.N.E. easterly. The river is about a third of a mile wide at the entrance, with 2 and 2½ fathoms on the bar, deepening to 5 and 6 fathoms mud inside. The coast to the eastward of this river is flat, with soundings of 20 to 25 fathoms black sand, about 2 leagues off shore.

*Port San Vicente.*

354. Port San Vicente, about 8 or 9 leagues E.N.E. of Apari, is formed by the small island of the same name lying between the N.E. end of Luzon and its adjacent island called Palabi. There is room in this port for three or four ships, sheltered from all winds; but the entrance is narrow and intricate, being formed between shoals on each side, which project from the S.W. part of Palabi, and from the island Vicente; a ship therefore is obliged to warp in.

*Anchorage.*

There is good anchorage in 5 fathoms opposite the mouth of the port, and sheltered from all winds but those between W. and S.W. There is also anchorage along the coast between Apari Road and this place, in 15 or 20 fathoms within 2 miles of the shore; the soundings are pretty regular, excepting a hole in the bank about 3 or 3½ leagues to the S.W. of Vicente, with 70 and 80 fathoms water about 2½ miles off shore, having close to the edge of it 30 fathoms black sand.

*Cape Engaño.*

355. Cape Engaño forms the N.E. point of the island of Palabi; it is moderately elevated. The south point of the same island is a round hill rather higher, and forms the east point of Port San Vicente. From the point that forms Cape Engaño, a coral reef, with high breakers and several rocks above water, projects E.N.E. about 3 miles; and patches of shoal water stretch a mile beyond it.

This reef fronts the eastern side of the island, at the same distance, extending southward about 4 miles, until abreast of the round hill that forms its south point, and joins to the N.E. end of Luzon. Close to the northward of Cape Engaño are two islets, the outermost of which, Lava Islet, is a square steep mass of lava about half a mile in extent, and may be seen 8 or 10 leagues.

The channel between Cape Engaño and Camiguin is nearly 7 leagues wide, and clear of danger. As the currents set strong to the northward in the southerly monsoon, vessels proceeding from the coast to the eastward, may pass within a mile or less of the north side of Lava Islet, and then steer E.N.E., which will carry them about a mile clear of the north end of the Cape Reef. It is proper with light winds to keep on the south side of the channel, to prevent being drifted to the northward by the currents near the Guinapac and Didica Rocks.

356. The Babuyan, or Five Islands according to Horsburgh, form a kind of circular chain fronting the coast of Cagayan at a considerable distance ; the channels between these islands are safe without soundings, and their coasts are generally steep-to.

357. Dalupiri Island, the westernmost of the group, is *Dalupiri Island*. distant about 12 leagues north-eastward of Point Cavnaiian ; it has a level appearance, and may be seen from 10 to 11 leagues distance. About  $1\frac{1}{2}$  miles off the south point lies Rijutan Island, *Rijutan Island*. with shoals projecting a considerable way to the southward ; but the water is deep in the narrow channel betwixt the islet and the south end of Dalupiri.

358. Juga, distant about 4 leagues south-eastward from Dalu- *Juga Island*. piri, is lower, and of an even appearance, terminating in low land at the eastern part. There are irregular soundings along the S.W. side of the island, where a ship may anchor occasionally ; and the port of Musa is formed betwixt the west end and two *Musa*. small islands adjacent, called Barrete and Mabeg. The best channel is from the southward, between Barrete and the west point of Juga, the depths being 14 and 16 fathoms outside, and from 9 to 12 in mid-channel.

The west channel between the two islands is narrow, with soundings from 6 to 10 fathoms. The north channel is rendered more intricate by a reef stretching half way over from the N.E. point of Mabeg towards Juga ; and the tail of this reef, joining to the N.W. point of Juga, is a bed of rocks with 5 and 6 fathoms water on it. This passage ought not to be attempted unless in a case of necessity, and a vessel to enter by it must borrow pretty close to Juga. Barrete Island has a *Barrete Island*. reef to the westward, and another projecting from its south point. Water may be procured, but with difficulty, some

distance inland. The port of Musa, although sheltered from the sea, is only fit to run for in case of necessity, the bottom everywhere being coral rock, mixed in some places with coarse sand or gravel. The depths are from 17 to 12 fathoms in the middle, shoaling to 4 or 5 fathoms near the coral reefs that line the shores on either side ; and the breadth of the port is not more than three quarters of a mile. The best anchorage is nearest the N.E. side of Barrete, in 14 or 15 fathoms, where the bottom is rotten coral and coarse sand ; near Juga it is all very rocky.

*Tide.*

The tide rises about 5 or 6 feet, but is very irregular in time and direction.

Mr. Hoffmeister, master of H.M.S. Cornwallis, speaks of a very high topping sea (first reported as breakers) experienced by that ship in passing between Dalupiri and Calayan ; this was almost immediately succeeded by a glassy smoothness. These effects he attributes to a strong N.W. current.

*Calayan Island.* 359. Calayan, about 5 or 6 leagues N.E. of Dalupiri, is formed of mountains and uneven land, highest in the centre, with low gaps in some places ; it is steep-to, without any safe anchorage, and may be seen about 15 leagues. Off its south point are some rocks above water, extending about a mile ; and about  $1\frac{1}{2}$  miles off the N.E. point there is an islet about a mile in extent north and south, called Panuctan.

*Wyllie Rocks.*

360. Wyllie Rocks were discovered on the 11th August 1825. These rocks consist of two clusters above water, with high breakers between them ; the southernmost rock, which is the largest, bearing N.N.E., distant 4 or 5 miles from Panuctan ; and the other cluster is about  $1\frac{1}{2}$  miles in a N.N.E. direction from the southernmost or largest rock.

*Claro Babuyan.*

361. Claro Babuyan is the most northerly and highest of these islands. A reef projects from the west end of the island, on which part there is a volcano ; betwixt the volcano and the mountains, on the eastern part, there is a concave curve in the form of a crescent, when viewed from the northward or southward ; but when the island is seen at a great distance from the eastward, it appears as one round mountain with a detached hummock to the northward. The south point is steep and rocky, with a black rocky islet about a mile off, in the form of a sugar loaf.

362. Camiguin is a high hilly island, about  $2\frac{1}{2}$  or 3 leagues in extent from N.N.E. to S.S.W. The shore in some places is lined with coral rocks, having soundings of 30 to 35 fathoms about a mile off; and the land is low close to the sea, along the eastern and northern sides of the island. The southern part is formed of a high mountain, visible at 20 leagues distance, which was formerly a volcano. To the westward of this mountain some steep white cliffs front the sea, about 2 miles to the southward of the south point of Port Pio Quinto. *Port Pio Quinto.* This port is a little to the southward of the middle of the island on the west side, formed by a concavity in the land about 3 miles wide and  $1\frac{1}{2}$  miles in depth, sheltered from the sea by the island Pio Quinto, which lies in the middle of the entrance. This island is high, about  $1\frac{1}{2}$  miles in circumference, steep-to seaward, and has on each side a safe channel leading to the port. The south channel is  $1\frac{1}{2}$  miles wide, with 40 fathoms at the entrance, decreasing gradually inside; it is formed between the island Pio Quinto and the south point of the port, which, with an islet near it, has the colour of iron; and a little to the southward there is a boiling spring of salt water. The north channel, formed between the island and north point of the port, is about a mile wide, with soundings fronting it of 28 and 30 fathoms, and 17 and 18 fathoms inside; but there is a patch with only 6 and 8 fathoms, rocky bottom, rather nearer the island than mid-channel. A coral reef projects about a quarter of a mile from the north point of the entrance; the bottom in the channel and in the port is mostly soft sand, with a little coral in some places, and the soundings decrease gradually. The best anchorage is in 15 or 16 fathoms to the eastward of the island of Pio Quinto, opposite a rivulet of fresh water, which bears E.N.E. from that island. The tide rises about 6 feet and flows 6 hours, on full *Tides.* and change of the moon. This may be considered the only place amongst these islands which is tolerably safe for a large ship.

363. Guinapac Rocks consist of two rocks like towers, one *Guinapac Rocks.* larger than the other, with some smaller rocks contiguous. There are no soundings close to them on the outside; and between them and the nearest part of Camiguin there is a channel 2 leagues wide, which is clear on the island side.

*Didicas Rocks.* 364. Didicas Rocks consist of four sharp-pointed rocks, much higher than the former, and when seen a considerable distance appear like ships under sail. There are among them many rocks of various sizes, which render the approach to them dangerous in light winds; for the currents run strong to the northward, producing ripplings like breakers in the vicinity of and among these dangerous rocks, and there are no soundings near them where a ship could anchor in case of necessity.

*Ballintang Is.-lands.* 365. Ballintang Islands consist of three small but high peaked islets or rocks, discernible about 9 leagues off, and when in one bear E. b. S.; the westernmost is much larger than the others, and a hole is seen through it when bearing N.E.; they are steep to, and may be passed on either side at 2 or 3 miles distance. The channel to the south of them is 6 leagues wide, and that to the northward about 5 or  $5\frac{1}{2}$  leagues.

*Southern Bashís.* 366. The Batan group, or Southern Bashís, were visited by Sir Edward Belcher, in command of H.M.S. Samarang during the month of November 1843, and re-visited in February 1844. In the approach to this group care must be taken to avoid a patch which frequently breaks, lying three quarters of a mile from the north end of Sabtang.

*Batan Island.* The islands composing this group (or Batanes) are as follow: Batan, Sabtang, Bashí, Goat, High Rock, Bayat Siayan, and Mabudis. The North Bashí: Yami and North Island. The North Bashí rocks of the charts could not be found by Sir Edward Belcher. The islands surveyed by H.M.S. Samarang were, Batan, Sabtang, Bashí, and Goat. *Subtang Island.* The space between the islands of Sabtang and Bashí affords but indifferent anchorage, the bottom being rocky with sandy patches between; but Dampier remained here some weeks. *Bashí Island.* There are no facilities for watering, the stream entering at the coral beach at least half a cable's length from the spot where boats could float. *Goat Island.*

*San Domingo Bay.* H.M.S. Samarang anchored in the bay of San Domingo in the island of Batan, which affords fair clear bottom, fine coral sand, the best anchorage being with the Convent barely open, when moored off the northern point of the bay in 13 fathoms. This, however, is not very secure in a norther. Although the holding ground is good, it can only be resorted to in the N.E. monsoon. There is a patch of rocks showing at low water

4 cables' lengths N.N.E. from Chagnie Point, having 27 fathoms close-to on the west, and  $4\frac{1}{2}$  fathoms on the east side. A cable's length E.N.E. from the same patch is a rock awash at low tide.

Supplies of beef, vegetables, and stock are plentiful as well *Supplies*. as cheap; but water, although plentiful and of excellent *Water*. quality, is not easily procured, owing to the reefs preventing the boats getting in without danger. The authorities recommended San Carlos, about 2 miles to the S.W., the anchorage *St. Carlos*. off which is exposed, and watering could only be effected in fine weather. The passage through the reef is, however, perfectly safe for the largest boats, which land on a sandy beach. This channel has been cut through the reef to admit schooners of 50 tons, which are generally hauled up when they arrive from Manila with the first of the S.W. monsoon.

The next anchorage is that of San Vicente, improperly *San Vicente*. called the Bay of Ivana. San Vicente is the port of Ivana, or landing-place for that village. The spot adopted for anchorage is very confined, with sandy bottom close to the reefs, and must be quitted the moment a northerly wind threatens. Several vessels have been driven off, and unable to purchase their anchors owing to the length of cable out, and have had to cut or slip from their anchor. Vessels, therefore, ought not to resort to this anchorage. During the S.W. monsoon other shelter must be looked for, and probably will be found under the N.E. part of the island of Sabtang; it has not yet been sounded.

367. Off the north end of Sabtang are two ledges of rock, with *Rocks off Sabtang*. a passage between them carrying 14 and 10 fathoms. The sea breaks upon them, and according to the account of the Alceste they have only 3 feet water at springs. These rocks are well placed on the chart\* by land stations, from which they were clearly visible by the edges of their breakers.

On Batan two very deep bays appear to afford shelter on *Bays on the N.E. face of Batan Island*. the N.E. side of the island, the northern and best Sonson; the other Mañanion; but both contain many rocks. They have not been sounded. During the N.E. monsoon strong winds prevail amongst the islands, and the currents are occasionally very strong, the flood setting to the S.W., and the ebb to the N.E.

\* See Admiralty Chart of the Bashi Channel, 1827. Scale, d. = 5·3 inches.

*Description of Batan and Sabtang Islands.*

368. Both the islands of Batan and Sabtang are mountainous, with many broad cultivated spots; the highest peak of Batan, apparently an extinct volcano, is about 5,000 feet above the level of the sea, and is thickly covered with grain. The following are the positions fixed on these islands: Bashí Island, south-east angle,  $26^{\circ} 19' 30''$  N.,  $121^{\circ} 42' 30''$  E. Santo Domingo, Casa Real,  $20^{\circ} 27' 26''$  N.,  $121^{\circ} 55' 55''$  E.

*Bayat Island.*

Variation  $0^{\circ} 30'$  W. Bayat, or the Orange Island of Dampier, is about 8 miles in an N.N.E. and S.S.W. direction. Mount Santa Rosa, on its N.E. end, rises 680 feet above the sea; it is in  $20^{\circ} 47' 18''$  N., and  $129^{\circ} 41' 30''$  E. The exterior of the island as viewed from the sea presents a blank barren outline, defying disembarkation to any but those acquainted with the locality, and is moreover without anchorage; the interior is, however, highly cultivated, and in many spots exhibiting patches of good timber trees; abundance of refreshments can be easily obtained.

*Channel between Bayat and Batan Islands.**High Rock.*

369. The channel between Bayat and Batan is about 5 leagues wide, and free from danger. High Rock lies about  $3\frac{1}{2}$  miles to the eastward of Bayat Island; the channel between them is clear. This island, which is small and steep-to on its western side, rises 840 feet above the sea; it is in  $20^{\circ} 41' 30''$  N., and  $121^{\circ} 53' 48''$  E. there are several islets (13) off its east side, the outermost extending not quite half a mile from the shore.

*Mabudis Island.**Siayan Islet.*

370. Mabudis Island, in  $20^{\circ} 54'$  N., and  $121^{\circ} 52'$  E., is about  $1\frac{1}{2}$  miles in a N.E. and S.W. direction; it is high and steep-to. One mile S.S.W. of it is the islet of Siayan, about  $1\frac{1}{2}$  miles in circumference, having off it to the north-eastward several detached rocks; the channel between Mabudis and Siayan is rendered unsafe by detached rocks.

The channel between Bayat and Siayan is about 4 miles wide, and free from danger.

*Yami Island.*

371. Yami, the northern islet of the Bashí group, is about a mile in circumference, and tolerably high; the position of the small islet at its S.W. point is  $21^{\circ} 5''$  N., and  $121^{\circ} 53' 48''$  E.; the variation  $1^{\circ} 6' 57''$  W.

*North Island.*

372. North island, lying 2 miles S.S.W. from Yami island, is high and steep-to, except on its eastern side, off which there are three islets about a cable's length from the main, and some

detached rocks. The channel between Yami and North island is safe, and carries soundings with rocky bottom, but too deep for anchorage. The channel between Mabudis and North island is 9 miles wide, and free from danger.

373. Gadd Rock, or Cambrian Breakers. The position *Gadd Rock*. of this dangerous rock has been correctly ascertained by Captain Ross, East India Company's surveyor, who examined it on the 9th of June 1817; it was found to be about 100 yards in length, and the boat had 12 feet water about the middle of the reef, which probably might be at the time of high water; as Captain Gadd perceived some points of rocks amongst the breakers; for there is a considerable rise and fall of tide hereabout on the springs, affording sufficient cause to think that some parts of the rock must be level with the surface of the sea, or visible above the hollow of the waves at low water, when there is much swell on. Captain Ross makes it to be in  $21^{\circ} 43' N.$ , and  $121^{\circ} 43' E.$  Little Botel Tobago Sima, N.  $2^{\circ} W.$  To avoid this danger, vessels should keep either towards Botel Tobago Sima, or the North Bashí islands, taking particular care to avoid the mid-channel track.

374. Vela Rete Rocks, in  $21^{\circ} 42' N.$  and  $120^{\circ} 52' E.$ , or *Vela Rete Rocks*. from Macao by chronometers, measured by Captain F. W. Beechey in H.M.S. Blossom, and Captain Ross, surveyor to the East India Company, are distant about 16 leagues to the westward of Gadd Reef, and bear about S.  $\frac{1}{2} W.$  from the low S.E. point of Formoza, distant  $4\frac{1}{2}$  leagues; they are a mass of detached rocks, above, even with, and below water, and may be seen about 5 miles. The channel between this danger and the south end of Formoza is safe; but very turbulent ripples are often experienced in this and the neighbouring channels, which Captain Ross observed to extend in a N.E. and S.W. direction, and running so high that the breakers resembled the sea breaking furiously over a dangerous shoal. Vessels passing to the southward of these dangers in thick weather, or in the night, should keep well towards the North Bashee Islands, making allowance for a northerly current, which is generally experienced in light winds and during the S.W. monsoon. From latitude  $21^{\circ} 15' N.$  to  $21^{\circ} 21' N.$  is a good track to preserve when passing between the Bashí Islands and Gadd Reef in thick weather. Several ships during light winds have

been drifted by the current between Formoza and Botel Tobago Sima.

*Botel Tobago Sima.*

375. Botel Tobago Sima,\* according to Captain Beechey of H.M.S. Blossom, in 1826, has its S.W. extreme in  $22^{\circ} 1' 40''$  N. and  $121^{\circ} 39' 45''$  E. It is a high island, 3 or 4 miles in extent, appearing in form of a saddle, or with a gap in it, when viewed from a S.S.W. or N.N.E. direction, and is visible 16 or 17 leagues. The highest part of the island is crowned with trees, and is well inhabited. There are several large villages on the southern part, and on the N.W. side are several rocky points. Detached rocks lie off the northern extremity, which are remarkable for their spire-like form. The coast is rocky in almost every part, and probably dangerous to land upon, as these needle rocks are seen in many parts of the island; with the exception, however, of those off the north extreme, they are attached to the island by low land; but the shore under water often assumes the character of that which is above, in which case a vigilant look-out for rocks would be necessary in rowing along the coast.

*Little Tobago Sima.*

376. Little Tobago Sima, in  $21^{\circ} 57' 30''$  N. and  $121^{\circ} 40' 30''$  E., is a small island of considerable height, about 4 miles distant to the S.E. of the southern part of the great island of the same name; a reef projects from its south end about a cable's length, which is steep-to.

*Alceste Shoal.*

377. Alceste Shoal, said to be in about  $22^{\circ} 5'$  N. and  $121^{\circ} 18'$  E., is supposed to have no existence.

*Samasana Island.*

378. Samasana island is, according to Sir Edward Belcher, in lat.  $22^{\circ} 38'$  N., and  $121^{\circ} 26'$  E., Captain Collinson makes it to be in  $22^{\circ} 41'$  N., and  $121^{\circ} 28'$  E. This island has a population of about 150 people, inhabiting a village concealed within the bamboo hedge skirting the sea. Horsburgh states that breakers project to the N.E. to a considerable distance.

*Harp Island.*

379. The supposed position of Harp Island is  $23^{\circ} 45'$  N., and  $122^{\circ} 4'$  E. A Mr. Boyle, in 1853, reports the existence of a volcano in  $24^{\circ}$  N., and  $121^{\circ} 50'$  E.

*East Coast of Formoza.*

380. The east coast of the island of Tai<sup>wan</sup> or Formoza (as described by Captain Collinson, in the China Pilot,

\* Sima signifies island in Japanese; Jama, san, hill; Take, Mine, peak; Saki, cape; Sedo, channel; Kawa, river; Fana, hana, point; Mura, village; Umi, nada, lake.

pages 168, 169, 170,) is without harbours, and deep water will be found close in to the land. The mountains rise almost immediately from the sea ; the sides of them in some places were cultivated, and houses seen. H.M.S. Plover anchored on an uneven bottom, the ship swinging from 13 to 22 fathoms in Black Rock Bay, but it is by no means *Black Rock Bay* to be recommended. Towards the north end of the island there is a small bay (Su-au), in  $24^{\circ} 37' N.$ , and  $121^{\circ} 52' E.$ , *Su-au Bay*. where a ship might anchor, and here the Chinese have an establishment, and boats will be seen, which were not observed anywhere else along the coast, after leaving the first sandy bay north of the south end of the island. There are some islets off both points of Su-au Bay.

381. Steep Island, the east point of which is in  $24^{\circ} 51' N.$ , *Steep Island*.  $121^{\circ} 59' E.$ , is about  $1\frac{1}{2}$  miles in circumference. One and a half miles to the S.W. of Steep Island is a small islet, with a rock to the S.W. of it.

382. The north part of Taiwan or Formoza is of moderate *North part of Formoza*. height, nearly perpendicular, and sloping both to the east and west. The N.W. point of the island is low: shoal water extends about  $1\frac{1}{2}$  or 2 miles to the northward of it.

Double Rock is an islet with three rocks to the S.E. of *Double Rock*. it, two of which are covered at low tide, the other always shows.

383. Kelung Island, in  $25^{\circ} 12' N.$  and  $121^{\circ} 49' E.$ , is about *Kelung Island*. 160 feet above the sea. S.S.W. from this island is the entrance to Kelung Harbour, which, but for the remarkable *Kelung Harbour*. precipitous island of Kelung, would not be easy to find. It is a blind harbour,\* as a sand spit projecting from the low island or Cay, on the port hand in going in, almost conceals the entrance. Coral banks line both shores of the harbour. The soundings in the middle of the entrance are from 14 to 12 fathoms, decreasing a little towards the coral banks which line the shores on each side. On the western side is the bight called Merope Bay, where a ship of that name lay 10 days, and procured good water and refreshments. This anchorage is in from 8 or 9 to 5 fathoms nearest to the coral bank which lines the north shore. The inner harbour, called Kelung

\* Remarks of Commander P. Cracroft (in the Naut. Mag. for 1853), in H.M.S. Reynard.

*Merope Bay.* harbour, is about a mile to the southward of Merope bay, and the coral reefs project some distance from the shore on each side ; in the space between them, the soundings decrease to 4 and 3 fathoms at the entrance of the inner harbour, which is at the S.W. corner of the inlet. The anchorage here is in 4 or 5 fathoms, sand and mud, is nearly land locked, and safe for small vessels. Kelung town is about a mile to the S.W. of the anchorage, but the channel up to it is very shoal.

To the north-eastward of Kelung harbour are the small islets of Pinnacle, Craig, and Agincourt, the positions of which according to Captain Collinson are as follow :—

|                  |   |          |           |
|------------------|---|----------|-----------|
| Pinnacle Island  | - | 25.27 N. | 121.58 E. |
| Craig Island     | - | 25.29 N. | 122.9 E.  |
| Agincourt Island | - | 25.38 N. | 122.8 E.  |

*Hoa-pin-su Group.* 384. The group of islets\* comprehending Hoa-pin-su, Pinnacle Rocks, and Ti-a-usu form a triangle, of which the hypotenuse (or distance between Hoa-pin-su and Ti-a-usu) extends about 14 miles, and that between Hoa-pin-su and the southern Pinnacle about 2 miles. Within this space are several reefs; and although a safe channel exists between Hoa-pin-su and Pinnacle Islands, it ought not, on account of the strength of the tides destroying the steerage, to be attempted if it can be avoided. This is also very deceitful, and the slightest deviation of the course, which would change the current from the weather to the lee bow, would also most materially change the rate of sailing, particularly under the variables which prevail here; and from the reliance on what would be deemed a commanding breeze, the vessel would be suddenly found unmanageable.

The extreme height of Hoa-pin-su was found to be 1,181 feet, the island apparently cut away vertically at this elevation ; on the southern side, in a W.N.W. direction, the remaining portion sloping to the eastward, when the inclination furnished copious rills of excellent water. That this supply is not casual is proved by the existence of fresh-water fish found in most of the natural cisterns, which are connected almost to the sea, and abounding in weeds which shelter them. The position of the

\* The account of this group is from Sir Edward Belcher's voyage in H.M.S. Samarang, 1843 to 1846.

S.E. angle of this island was found to be in  $25^{\circ} 47' 7''$  N., and  $123^{\circ} 26'$  E.

385. Pinnacle Group is connected by a reef and bank of sound-*Pinnacle Group.* ings with Hoa-pin-su, allowing a channel of about 12 fathoms between it and Channel Rock; it presents the appearance of an upheaved and subsequently ruptured mass of compact grey columnar basalt, rising suddenly into needle-shaped pinnacles, which are apparently ready for disintegration by the first disturbing cause, either gales of wind or earthquake. On the summits of some of the flat rocks long grass was found, but no shrubs or trees. The rocks were everywhere whitened by the dung of marine birds.

386. Ti-a-usu appears to be composed of huge boulders of *Ti-a-usu.* a greenish porphyritic stone. The capping of this island, from about 60 feet to its summit, which is about 600 feet above the level, is covered with a loose brushwood, but no trees of any size.

387. Raleigh Rock rises abruptly from the reef to a height *Raleigh Rock.* computed at 90 feet perpendicular on all sides, and covering an area of probably 60 feet in diameter, appearing in the distance as a junk under sail. Sir Edward Belcher states that he found it upon the computed bearing, as given in the charts from Ti-a-usu, its position therefore cannot be much, if at all, in error.

388. The *Meiaco-sima\** forms the westernmost group *Meiaco-sima.* of a series of islands extending from Tai<sup>n</sup>an, in a north-easterly direction, to the southern extremity of the Japan Archipelago.

The group is comprehended between the parallels of  $24^{\circ} 0'$  and  $25^{\circ} 6'$  N., and the meridians of  $122^{\circ} 50'$  and  $125^{\circ} 30'$  E. and divided into two: Pachung, the westernmost (excluding Kumi and Chungchi), numbers ten islands, five only of which possess mountains; the remainder are low, like the coral islands of the Pacific, and similarly belted with reefs which connect them into a distinct group.

389. Chungchi is a high uninhabited mass of rocks; and *Chungchi Island.* W.N.W. from it is Kumi island, conspicuous from the sea by *Kumi Island.* the peculiar sharpness of its single peak, which has a height

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\* See Admiralty Chart of these islands by Sir Edward Belcher, 1845.  
Scale, m. =  $0\cdot 5$  of an inch.

of 770 feet. All the ranges are capped with trees and brushwood ; but excepting the pine fir, which contains a great portion of resin, none attain any size. There are four villages on the island, one on the west, two on the north, and one on the south ; the principal port and town is on the north. There were several junks of 50 tons riding at anchor ; but the entrance from the sea is so very narrow and shallow, that ingress and egress can only be effected at spring tides and with very smooth water. The position of the northern beach to the west of the town is  $24^{\circ} 26' N.$ , and  $122^{\circ} 56' E.$ .

No convenient anchorage could be found, but during the interval employed in the examination, the Samarang discovered a bank of soundings to the northward of the town ; it is apparently a coral ledge, but affords tolerable anchorage in fine weather.\*

The islands of the Tai-pin-san group are, Tai-pin-san, Erabu, Ashumah, Corumah, and Hummock ; the two islets between Tai-pin-san and Pachung are said to be a continuation of the reefs, which extend to the N.E., North, and N.W. of Tai-pin-san, and on which H.M.S. Providence was lost in 1797.

*Ykima Island.* Captain Sir Edward Belcher in H.M.S. Samarang looked in vain for the island of Ykima.

Vessels should not venture near these islands after dark until the dangers have been more closely examined. From the western limit of Chungchi Island to the eastern range of the Tai-pin-san breakers, the space is dangerous. Independent of the many reefs which connect the islands, the constant strong winds, with haze and rain during the N.E. monsoon, render the approach at that season, unless in a clear day, very

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\* Horsburgh East India Directory, vol. 2, page 528, states: "It is reported that there is a dangerous shoal extending E. b. N. and W. b. S. 3 miles, and bearing N.W. b. W. 3 or  $3\frac{1}{2}$  leagues from Kumi."

The Nautical Magazine for 1844, page 244, states that, "On the evening of the 16th November, with Kumi Island, latitude  $24^{\circ} 25' N.$ , longitude  $123^{\circ} 5' E.$ , bearing E. b. S. 3 leagues, saw heavy breakers ahead and on the lee bow, apparently on a dangerous shoal, extending E. b. S. and W. b. N., and bearing from Kumi Island, S.W. b. W.  $3\frac{1}{2}$  leagues. Having dark cloudy weather with rain, and a heavy sea running, it was too late to send a boat to sound ; but the breakers were seen continually from 4.30 p.m., until 6 p.m."—*Bombay Summary.*

hazardous. The following description of these islands is by Sir Edward Belcher:

390. "H.M.S. Samarang entered by the west, passing to the *Meaco-sima Group* southward of Chungchi and Sandy islands of the charts.

The ship passed within 2 miles of the southern reefs or breakers off Sandy island, standing on close hauled to the eastward, intending to make Ykima, and beat up from it to Tai-pin-san. It was fortunate that she was not tacked that night, as on the morning following, not seeing Ykima (which I suspect does not exist), and the weather very boisterous, we stood on to the westward to get under the lee of Pachung, and endeavour to reach some place of shelter. On nearing Pachung, ran down the eastern and southern side, reaching the south-western extremity of its reef about 4 p.m.

Here breakers barred us as far as the eye could reach from the mast-head, and apparently connecting Sandy island with the group of larger islands.

We were fortunate, however, in finding an opening into the *Broughton Bay*. reef, and after due examination shot up into 13 fathoms, furled, and warped the ship into a snug position, where she was moored with just sufficient room to swing, the depths up to the coral ledges varying from 13 to 7 fathoms.\*

Had the weather been thick, or had night caught us before we sighted the reefs, it is highly probable that the ship would have been endangered, as we subsequently found they were a complete labyrinth, similar to the Bermudas.

391. The only directions which will assist the seaman in finding this snug little anchorage (safe only, however, during the N.E. monsoon) are as follows:—

Approaching from the westward, give the reefs off the south side of Sandy island a 2-mile berth, and work for the S.W. angle of Pachung, avoiding the reefs, which extend from it in a direct line to Sandy island.

A high rock (South rock of the charts) will point out the outer reefs of Pachung. The dangers between it and Pachung must be avoided by eye, the shoals being visible in 5 or 6 fathoms, and breaking upon those of 2 and 3.

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\* H.M. Sloop Lily, in 1852, searched for the opening into Broughton Bay, but could not find it.—*Remark Book H.M.Sloop Contest, 1852, J. W. Spencer, Commander.*

The opening of the reef lies in the heart of a deep indentation, just to the northward of the low S.W. point of the island, and has, apparently, a centre bar. The right-hand opening is the proper one.

From the eastward there are no dangers which are not clearly visible. After making the land, edge along the southern and eastern breakers until the abrupt turn of the breaker line is seen, at which moment the extreme S.W. point of the bay will open. The breakers have regular soundings off them, but the course in will probably lead in 7, 8, or 9 fathoms, deepening to 14 or 15 off the inlet. As the breeze generally blows out, it is advisable to send a boat to find clear ground off the opening, and shoot up and anchor. The vessel may then be warped in.

But if merely intending a cursory visit, the outer anchorage appears good.

*Broughton Bay.* At this port, which is designated Broughton bay, neither wood nor water can conveniently be procured; and the only reason for noticing it is, that a port of refuge, in case of disaster, may be found on this side of the island; and a disabled vessel could not beat round to the more secure harbour of Port Haddington, on the northern side.

The landing place is in  $24^{\circ} 21\frac{1}{2}'$  N.,  $124^{\circ} 13'$  E., variation  $1^{\circ} 23'$  W.

With respect to a distressed vessel, wood and water could be obtained, and the authorities reside at this place.

392. No safe anchorage is to be met with between Broughton bay and Port Haddington; although during the S.W. monsoon there are several good bays on the northern side, where anchorage might be found, but certainly not adapted for refit.\*

Rounding the north-eastern extremity of Pachung there are two low islands lying about 15 or 20 miles off the eastern extreme which ought to be avoided by night, but the dangers by day are clearly denoted by breakers. To the northward of these islands the ground is foul, and the Samarang was compelled to tack to the westward in 7 fathoms, at least 10 miles north of them.

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\* There is a passage from Port Haddington into Broughton bay, which was used by H.M.S. *Lily* and *Contest*, but abounding with coral reefs.—*Remark Book H.M.Sloop Contest, J. W. Spencer, Commander, 1852.*



still water in any monsoon; and that two other open bays, well sheltered in the N.E. monsoon, are admirably adapted for watering.

Of the dangers on the northern side of this group, I cannot yet venture to treat. I do not think that any vessel should run the risk of being hampered by the shoals, and therefore should not come further to the eastward, when beating up for Chusan, than to sight Chungchi Islands. The currents as you approach these islands press more southerly and easterly than I experienced on the coast of Formoza, and stronger breezes prevail as you advance easterly. Indeed, it blows incessantly at this western group.

396. After quitting Port Haddington, the Samarang beat to the northward during the night, and endeavoured to weather the two low islands already noticed as lying to the eastward of Pachung. We had passed the breakers, leaving them about 5 miles under our lee, when, disliking the swell and colour of the sea, and finding the depths decreased to 7 fathoms, the ship was immediately tacked. We stood to the S.W., and succeeded in effecting a passage between the islands (remembering that such advice had been given to me by one of the chiefs of Pachung). I strongly suspect that extensive banks or ledges of coral connect these islands (northerly) with Taipin-san; and a strong reason for this offers in the fact of their being included by the natives in the Taipin-san Group, when they are much closer, by half the distance, to Pachung.

About 4 P.M. we had neared Taipin-san, and nearly at sunset had a sufficient glimpse of the reefs to enable us to select a probable spot for anchorage, the suspected dangers off shore being quite equal to venturing boldly up to the reefs. Having tacked twice, rather close to two off-lying patches, and obtaining soundings with 15 fathoms, a boat was sent ahead, and with a leading wind the ship slowly entered without more light than enough to distinguish our leading boat.

Upon a sudden flash, for "danger discovered," the anchor was let go, and the ship found to be in a secure berth in 12 fathoms, the boat being on the reefs.

This turned out to be the only anchorage at Taipin-san. It is merely an indentation formed by the reefs connecting the western island Ashumah with Taipin-san, and is very unsafe,

a very heavy sea tumbling in with a southerly wind. The observatory at Taipin-san (at the most convenient landing-place within the reefs, and the last rocky point towards the long sandy bay) is in  $24^{\circ} 43\frac{1}{2}'$  N., and  $125^{\circ} 14'$  E.; variation,  $1^{\circ} 23'$  W.

397. The island of Taipin-san is surrounded by a very extensive chain of coral reefs, upon which the islands of Ashumah, Erabu, Corumah, and Hummock are situated on the West, N.W., North, and N.E. The reefs do not extend very westerly from Ashumah, unless in patches unconnected with the main belt. Off Erabu they extend 3 or 4 miles, but close towards its north-western angle, where a deep water channel admits vessels within the belt up to Hummock Island and into the main harbour of Taipin-san. The reefs again spit out on the S.W. angle of Corumah, and sweep northerly, as far as the eye can reach (from 100 feet elevation), round to east in continuous lines of breakers, edging in towards the S.E. extremity of Hummock Island. A high patch of rocks is situated on the N.E. angle of this outer belt, probably 10 miles from the northern point of Taipin-san.

I think that safe anchorage during the S.W. monsoon might be found inside the reefs of Hummock Island, and also safe in the N.E. monsoon; but the passage in or out at that season would be attended with risk, as sudden squalls, gales, and numerous patches beset the whole eastern side of Taipin-san.

The southern coast line (i.e., from the S.E. breaker patch to the S.W. anchorage) does not offer many dangers if a tolerable look-out be observed. The reefs do not extend more than 100 yards from the shore, and generally less.

398. There can be no inducements for any vessel to visit Taipin-san; neither wood, water, nor any other necessaries could be procured. A few pigs, fowls, and sweet potatoes might be obtained for cabin use, but this would hardly warrant the risk and detention on such a dangerous coast.

Quiting Taipin-san on the 4th February, we steered for Pachung, and on to Kukien, where we landed to obtain observations and sand in Gage Bay. We then bore away to sight Kumi."

399. The Loochoo Islands lie to the north-eastward of the Meia-  
co-sima Group, and consist of one large island surrounded by *Loochoo Islands.*

smaller ones. The large island is of considerable size and well inhabited. Captain Basil Hall, in the year 1816, found it to extend between  $26^{\circ} 3'$  and  $26^{\circ} 53'$  N., and between  $127^{\circ} 34'$  and  $128^{\circ} 25'$  E., being nearly 60 miles long in a N.E. direction, and preserving a tolerably uniform breadth of about 10 or 12 miles. The north end is high and bold, with wood on the top of the hills. The N.E. coast is also abrupt but quite barren, and the N.W. side is rugged and bare. The S.E. side is low, with very little appearance of cultivation; the South, S.W., and Western coasts, particularly the two former, are of moderate height, and present a scene of great fertility and high cultivation.

*Napakiang Road.*

Napakiang Road in  $26^{\circ} 13'$  N., and  $127^{\circ} 43'$  E., on the S.W. side of the island, is sheltered by surrounding reefs, having two passages leading into it,—one from the northward, the other, which is the best, from the westward. The following remarks are from the pen of Captain F. W. Beechey, who surveyed the roadstead whilst in command of H.M.S. *Blossom*, in 1826.\*

400. Vessels bound to Napakiang may pass close round the south extremity of the island, and sail along the western coast at the distance of 3 or  $3\frac{1}{2}$  miles, leaving Heber reef (which is a rock 6 feet above the sea, surrounded by reefs) and Sandy island on the port-hand. Abbey point, at the south extremity of the port of Napakiang, may be known by its ragged outline, and by a small wooded eminence called Wood hill, about  $1\frac{1}{2}$  miles to the southward of it. The main land here falls back and forms a bay, which is sheltered by coral reefs stretching to the northward from Abbey point. They are, however, disconnected, and between them and the point there is a channel sufficiently deep for the largest ship. Nearly in the centre of this channel, outside withal, there is a coral bank named *Blossom* reef, having a good passage on either side of it. The channel between it and Abbey point should be adopted with southerly winds and flood tides, and that to the northward with the reverse. A reef extends from Abbey point to the south-west, and also to the northward, called

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\* See Admiralty Plan of Napakiang from Captain Beechey's survey, 1827. Scale, m. = 3·0 inches. See also App. No. 2. p. 204.

Abbey reef. When off Abbey point, Kumi Head, a rocky headland, will be seen about  $1\frac{1}{2}$  miles north of the town; and upon the ridge of high land beyond it are three hummocks to the left of a cluster of trees. In the distance, a little to the left of these, is Mount Onnodake in  $26^{\circ} 27' N.$  A re- *Onnodake*. markable rock, which from its form has been named Capstan Head, will next appear; and then to the northward of the town a rocky head, with a house upon its summit, called False Capstan Head. At the back of Capstan Head is Sheudi Hill, upon which the upper town is built. The highest southern point of this is one of the landmarks which will be referred to.

Having opened Capstan Head, haul towards Abbey Reef, and bring the right hand hummock about half a point to the east of Kumi Head; these marks will lead through the south channel, in about 7 fathoms, over the tail of the Blossom reef. Vessels may now round Abbey reef tolerably close, and steer for the anchorage.\* Should the wind veer to the eastward in the passage between Blossom reef and Abbey point, with the above mentioned marks on, do not stand to the northward, unless the outer cluster of trees near the extremity of Wood hill is in one with, or open to, the westward of Table hill, a square rocky headland to the southward of it. This mark clears also the tongue of Oar reef, which with Blossom reef forms the other western channel.

It is advisable, with the wind to the north-westward, to beat *Oar Channel*. through the channel north of Blossom reef (Oar channel), in preference to that above mentioned. To do this, bring the False Capstan Head in one with a flat cluster of trees on the ridge to the right of the first gap south of Sheudi. This will clear the north tongue of Blossom reef; but unless the Table hill be open to the eastward of Wood hill vessels must not stand to the southward, but tack directly the water shoals to less than 12 fathoms, and endeavour to enter with the marks on. Having passed to the N.E. of Blossom reef, which will be known by Wood hill being seen to the right of Table hill,

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\* Care must be taken to avoid the Ingersoll Patches, on which there is only a fathom water; they are inserted in the Admiralty Plan of Napakiang Road as discovered in 1837; they bear from the Capstan rock W.  $\frac{1}{4}$  S., and from the South Fort N. b. W.  $\frac{3}{4}$  W.; the French survey of 1846 does not show these rocks.

stand towards Abbey point as close as convenient, and on nearing Oar reef take care of a tongue which extends to the eastward of it, and be careful to tack immediately the outer trees of Wood point open with Abbey point. In entering at either of the western channels, remember that the flood-tide sets to the northward, over Blossom reef, and the ebb to the southward.

401. The best anchorage is in Barnpool, at the N.E. part of the bay, in 7 fathoms water, where a vessel may ride in perfect security. The outer anchorage would be dangerous with hard westerly gales. H.M.S. Blossom anchored there in 14 fathoms, muddy bottom, Abbey Bluff, S.W.  $\frac{1}{4}$  S., Capstan Head E.S.E.  $\frac{3}{4}$  E. variation  $0^{\circ} 54' W.$

The entrance to Barnpool lies between Barn Head and the reef off Capstan Head. In entering, do not approach Barn Head nearer than to bring the north edge of Hole rock in one with the before-mentioned flat clump of trees on the hill south of Sheudi, until the point of the burying ground (Cemetery point) is seen just clear of False Capstan Head. Anchorage may be taken in any part of Barnpool.

*Tides.*

As the northern channel into Napakiang road is very dangerous, it ought not to be attempted by strangers. It is high water at Napakiang at  $6^{\text{h}} 28^{\text{m}}$  full and change; rise, from 5 to  $7\frac{1}{2}$  feet, but this was very irregular during the Blossom's stay at the place.

The hummock mentioned as the leading mark for entering the South Channel not being pointed out on the chart, the following directions from the officers of the French corvette La Sabine are inserted, viz.: Entering from the S.W. bring Little Gap in one with the right shoulder of Tomb Hill, these marks will lead a vessel into the anchorage. In the survey made by the officers of La Sabine in 1846, there are three patches of rocks not noticed by Captain Beechey, having over them 2, 4 and  $4\frac{1}{2}$  fathoms respectively. The 2 fathom patch bears from Abbey Point N. b. E.  $\frac{3}{4}$  E. False Capstan Head W.N.W.  $\frac{3}{4}$  W. The 4 fathom patch bears from Capstan Head N.W. b. W.  $\frac{3}{4}$  W., from Abbey Point N.E.  $\frac{3}{4}$  E. The  $4\frac{1}{2}$  fathom patch bears from Abbey Point N.N.E.  $\frac{1}{4}$  E., False Capstan Head N.W. b. W.  $\frac{3}{4}$  W.

*Port Melville.*

402. Port Melville lies near the N.W. part of the island. The entrance to it is in  $26^{\circ} 43' N.$ , formed on the eastern side by

Herbert island, and on the western side by the reef which fronts the peninsula, which projects 5 or 6 miles to the westward, having a small isle called Sugar Loaf island near its extremity. On the south side of the peninsula lies Deep bay ; there are no soundings, with 100 fathoms in it, at a small distance from the shore.

The entrance into Port Melville is about S.E. b. S. along the western side of Herbert island, until abreast of the S.W. point of this island, when two conspicuous round black rocks will be seen off the point forming the S.E. side of the harbour. Bring the distant double-topped hill (the second highest of the range) S.E. b. S. in one with Hebe rock, till the harbour opens ; then steer about S.S.W. towards Chimney rock and keep along the eastern shore in 7, 6 and 5 fathoms ; a stranger should anchor and verify the entrance ; when past the narrowest part, a berth may be selected at discretion.\*

Near the middle of the eastern side of Great Loochoo, there *Barrow Bay*, is a deep inlet called Barrow Bay, bounded by shoals ; and the south-eastern coast is mostly fronted by isles and coral shoals, destitute of any safe place of shelter.

403. To the westward of Great Loochoo are the Kirrama *Kirrama Islands* of Basil Hall in 1816, and Kera-sima of Siebold, and the islands of Agenhu, Tusima, Kuri-sima (Litao of the Chinese), and Kumi-sima or Komisan, the positions of which are very little known. Captain Beechey states that the groups of islands seen in the distance to the westward of Loochoo are called by the natives Kirrama and Agugni. Kirrama consists of four islands, Zamami, Accar or Yakai of Siebold, Ghiruma, and Twkaschi, of which all but the last are very small. Agugni consists of two small islands, Aghi and Homar. Both groups are peopled from, and are subject to, Loochoo. The small coral islands off Napakiang are called Tzee (Kei of Siebold), and in Basil Hall's chart of 1816 Reef islands.

404. Inquiries were made about Gin-sima, Kin-sima, and *Boninsima*, which were supposed to exist at no great distance to the eastward of Loochoo. The two first have never been seen since their discovery, but the other group has long been known

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\* See also Appendix No. 3, p. 206, for Port Melville or Oonting (Igushen).

to Japan ; and, according to the Japanese charts, it has been inhabited some time, as several villages and temples are marked thereon.

*Sugar-loaf.*

*Montgomery Group.*

*Kirrama Islands.*

*Kumi-san Island.*

*Yori-sima.*

*Wukido Island.* Yeirabu-sima of Siebold, or Wukido of Basil Hall, South Peak,  $27^{\circ} 21' N.$  ( $27^{\circ} 14' N.$   $128^{\circ} 33'$ , of Captain Collinson in 1855) ;  $128^{\circ} 31' 34'' E.$  ; height, 889 feet.

*Crown Island.* 407. Tok-sima of Siebold, or Crown Island of Broughton, in 1797, highest peak,  $27^{\circ} 44' N.$  ;  $128^{\circ} 59' E.$  ; height, 2,461 feet. The northern peak is 2,034 feet above the sea ; a village is built on its N.W. face. This island is 14 miles from N. to S., and 7 from east and west.

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\* It is greatly to be regretted that navigators will not endeavour to ascertain the names of places as given by the natives ; or failing these, that they will not retain the names affixed to islands by the first discoverers. In the present case there are three and occasionally four names for each of the islands in this archipelago. So long as this practice is pursued our charts will remain a maze of confusion.—J. W.

408. Iwo-sima, or Sulphur Island, in  $27^{\circ} 51' N.$ ;  $128^{\circ} 14' E.$  *Iwo-sima*. ( $128^{\circ} 19'$ , Collinson); height, 541 feet; is a volcanic mountain still in action.

409. Oho-sima, or Harbour Island, appears to extend about *Oho-sima*. 26 miles in a N.E. and S.W. direction. There are three peaks upon the principal island, 2,346, 1,364, and 1,361 feet above the sea respectively; the two islets off its southern end rise to the height of 1,191 and 902 feet above the sea. There is an island off the N.E. end called Kikai-sima. The western shore of Oho-sima is indented and possibly affords good anchorage. There are several islets off it; the highest peak is in  $28^{\circ} 13' N.$  and  $129^{\circ} 15' E.$ ; variation,  $2^{\circ} 27' W.$ .

410. The Linschoten, or Cecille Archipelago (so called in the *Linschoten Archipelago*. French charts after the admiral of that name, by whose directions the islands were examined in 1846) extend from  $28^{\circ} 49' N.$  to  $30^{\circ} 6' N.$ , and from  $129^{\circ}$  to  $130^{\circ} 3' E.$

411. Yoko-sima, or Ogle island, of Sir E. Belcher in 1845, *Yoko-sima*. the southernmost, rising to the height of 1,623 feet above the sea, is an extinct volcano, the highest part of which is in  $28^{\circ} 49' N.$ , and  $128^{\circ} 59' E.$ ; there is a small islet about a mile to the northward of it.

412. Tukara-sima, 885 feet above the sea, is in  $29^{\circ} 8' N.$ , *Tukara-sima*. and  $129^{\circ} 11' E.$

413. Simako, or Cooper group of Belcher, are four small *Simako*. rocks, the highest of which is 738 feet above the sea, and is in  $29^{\circ} 13' N.$ , and  $129^{\circ} 19' E.$ ; variation,  $3^{\circ} W.$  The easternmost islet bears from it about E.  $\frac{1}{2}$  N. 3 miles.

414. Akuisi-sima, or Samarang, 2,184 feet above the sea, *Akuisi-sima*. is in  $29^{\circ} 27' N.$ ,  $129^{\circ} 35' E.$ ; a very small islet lies off its N.W. face.

415. Suwa-sima, or Volcano island of Belcher, is an active *Suwa-sima*. volcano, 2,805 feet above the sea; it is in  $29^{\circ} 38' N.$ , and  $129^{\circ} 42' E.$

416. Fira-sima, or Disaster island, lying to the W.N.W. of *Fira-sima*. Suwa-sima island, is 879 feet above the sea, and is in  $29^{\circ} 41' N.$ , and  $129^{\circ} 31' E.$

417. Naka-sima, or Pinnacle island, is 3,281 feet above the *Naka-sima*. sea; its peak is in  $29^{\circ} 53' N.$ , and  $129^{\circ} 50' E.$

418. Hebi-sima, or St. François Xavier island, rises to the *Hebi-sima*. height of 1,820 feet above the sea. There is a small islet off its N.W. face. The peak is in  $29^{\circ} 55' N.$ , and  $129^{\circ} 32' E.$

**Kohebi-sima.** 419. Kohebi-sima, or Forcade Rock, 984 feet above the sea, is in  $29^{\circ} 53'$  N., and  $129^{\circ} 36'$  E.

**Kutsino-sima.** 420. Kutsino-sima, or Alemene island, is 2,116 feet above the sea. The highest part is in  $29^{\circ} 59'$  N., and  $129^{\circ} 55'$  E.

**Lapelin Rocks.** 421. Lapelin rocks (or Blake reef, 1838), the highest of which is 98 feet above the sea, and is in  $130^{\circ} 5'$  N., and  $130^{\circ} 3'$  E., consist of several distinct islets and rocks, extending about 3 miles in a N.E. and S.W. direction.

**Yakuno-sima.** 422. To the north-eastward of the Lapelin Rocks is the island of Yakuno-sima. Mount Moto-miyama, the highest peak, rises to the height of 5,848 feet; it is in  $30^{\circ} 21'$  N. and  $130^{\circ} 29'$  E. The island, which has not been examined, is about  $12\frac{1}{2}$  miles from north to south; the south point, Kosima-saki, is in  $30^{\circ} 15'$  N. and  $130^{\circ} 24'$  E.

**Tanega-sima.** 423. Tanega-sima has never been examined. It appears to extend from  $30^{\circ} 22'$  N. to  $30^{\circ} 43'$  N., and from  $130^{\circ} 54'$  E. to  $131^{\circ} 5'$  E. According to the French chart of 1846 there is the outline of a good harbour on its western side, and the sites of some towns are noticed.

**Seriphos Rock.** 424. Seriphos or Oumaro Rock is marked in the French chart as a rock under water; it is in  $30^{\circ} 44'$  N. and  $130^{\circ} 45'$  E.

**Julie Island.** 425. Yairaba-sima, or Julie island, is an active volcano, rising to the height of 2,067 feet above the sea. Its highest peak is in  $30^{\circ} 27'$  N. and  $130^{\circ} 11'$  E. The island is about 6 miles long, in an E.S.E. and W.N.W. direction; its greatest breadth, 3 miles.

**Taki-sima.** 426. Taki-sima, or Apollos island, is high, and about 2 miles in circumference; its centre is in  $30^{\circ} 48'$  N., and  $130^{\circ} 24'$  E.

**Iwo-sima.** 427. Iwo-sima, or Volcano island, is an active volcano, its highest peak, which rises to the height of 2,345 feet, is in  $30^{\circ} 42'$  N. and  $130^{\circ} 16'$  E. var.  $3^{\circ} 50'$  W.

**Trio Rocks.** 428. The Trio Rocks are three distinct islets, of about an equal height; the centre islet, which is 223 feet above the sea, is in  $30^{\circ} 45'$  N. and  $130^{\circ} 5'$  E.

**Kuro-sima.** 429. Kuro-sima, or Sta. Clara, rises to the height of 2,132 feet; its centre is in  $30^{\circ} 50'$  N. and  $129^{\circ} 55'$  E.

**Ingersoll Rocks.** 430. The Ingersoll, Morrison, or Larne rocks, eight in number, extend in a N.E. and S.W. direction about  $5\frac{1}{2}$  miles; the highest, which is 446 feet above the sea, is in  $30^{\circ} 51'$  N. and  $129^{\circ} 26'$  E.

431. Udsi-sima, Parker, or Roche Poncié islands,\* are four *Roche Poncié Islands.* in number, the largest of which is about 2 miles in circumference and 1049 feet above the sea; it is in  $31^{\circ} 12'$  N. and  $129^{\circ} 23'$  E. Two and a half miles and one mile respectively to the S.W. of the larger island are two small islets; and to the eastward of the peak of the large island, about a mile, is the fourth islet.

432. The large island of Kiusiu is the southernmost of the *Kiusiu Islands.* Japan group; this island is very little known; on its western side is Nagasaki harbour, in  $32^{\circ} 44'$  N. and  $129^{\circ} 52'$  E. The south point of Kiusiu, Cape Chichakof or Satano-misaki, *Chichakof.* appears to be in  $30^{\circ} 57'$  N. and  $130^{\circ} 37'$  E., and forms the northern boundary of the strait of Van Diemen.

433. Kosiki (Meac-sima of the French chart), consisting of two large and several small islands, extend in a N.N.E. and S.S.W. direction from  $31^{\circ} 35'$  N. to  $31^{\circ} 52'$  N. and from  $129^{\circ} 36'$  E. to  $129^{\circ} 51'$ ; they are very little known, neither are the Nadiejda Rocks, which are supposed to lie in  $31^{\circ} 48'$  N. *Nadiejda Rocks.* and  $129^{\circ} 36'$  E. to  $129^{\circ} 35'$  E.

Off the south end of the Kosiki group, at the distance of *Tsukurase Islands.* 8 miles, are the Symplegades or Tsukurase islands, three in number, also very imperfectly known.

434. Meak sima, or the Asses' Ears, four small islands and *Asses' Ears.* two islets, are called by the natives Kuka-saki, Taka-sima, Wosima, and Me-sima; the largest, Taka-sima, is in  $32^{\circ} 3'$  N. and  $128^{\circ} 46'$  E.; they are, however, very little known.

The above position is given by Krusenstern and Cecille, but Mr. C. H. Freeman, Master of H.M.S. Barracouta, in October 1854, states that by two well-going chronometers they are in  $128^{\circ} 18'$  E. latitude of centre  $32^{\circ} 3'$  E.; and Mr. H. W. Inglis, Acting-master of H.M.S. Styx, in September 1854, considers them in  $128^{\circ} 13'$ , the lat. being tolerably correct; the southernmost being in  $32^{\circ} 2'$  N. In this uncertainty of positions on the coast of Japan, a strict look-out is required of the navigator.

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\* Thus named, and deservedly so, after the Ingénieur-hydrographe of the French Expedition under Admiral Cecille in 1846.

## No. 2.

## NAPHA.

[This harbour was surveyed by Captain F.W. Beechey, R.N., in H.M.S. Blossom, in the year 1827 ; and a Plan of it is published by the Admiralty, under the title of Napakiang Road (No. 990) on the scale of 3 inches to a nautic mile. The place is also fully described in Captain Beechey's voyage of the Blossom, vol. 2, p. 143, and at p. 196 ante ; but as the present Remarks by the United States Japanese Expedition are more recent, and give an account of buoys lately placed, they are here reprinted for the benefit of the navigator.]

*Napha.*

Napha is the principal sea-port of Great Loo-choo, and perhaps the only one possessing the privileges of a port of entry.

Its inner, or Junk harbour, has a depth of water of from 2 to 3 fathoms, and, though small, is sufficiently large to accommodate with ease the fifteen or twenty moderate sized junks which are usually found moored in it. These are mostly Japanese, with a few Chinese and some small coasting craft, which seem to carry on a sluggish trade with the neighbouring islands.

The outer harbour is protected to the eastward and southward by the main land, whilst in other directions it is surrounded by merely a chain of coral reefs, which answer as a tolerable breakwater against a swell from the northward or westward, but afford of course no shelter from the wind. The holding ground is so good, however, that a well found ship could here ride out almost any gale in safety.

*Approach.*

The clearest approach to Napha from the westward is by passing to the northward of the Amakirrima islands and sighting Aghenu island, from whence steer a S.E. course for the harbour, passing on either side of Reef islands, being careful, however, not to approach them too near on the western and southern sides, as the reefs below water in these directions are said to be more extensive than is shown by the charts.

After clearing Reef islands, bring Wood hill to bear S.S.E., when stand down for it until getting upon the line of bearing

for the South channel. This will carry you well clear of Blossom reef, yet not so far off but that the White tomb and clump of trees or bushes to the southward of Kumi Head (see view No. 3, on chart)\* can be easily distinguished. An E.N.E.  $\frac{1}{4}$  E. or E.N.E. course will now take you in clear of all dangers, and give a good anchorage on or near the Seven-fathom bank, about half a mile to the northward and westward of False Capstan Head. This channel, being perfectly straight, is more desirable for a stranger entering the harbour than Oar Channel, which, though wider, has the disadvantage of its being necessary for a vessel to alter her course some four or five points, just when she is in the midst of reefs which are nearly all below the surface of the water.

**TO ENTER BY THE OAR CHANNEL.**—Bring the centre *Oar Channel* of the island in Junk harbour (known by the deep verdure of its vegetation) to fill the gap between the forts at the entrance of Junk harbour (see view No. 2 on chart), and steer a S.E.  $\frac{1}{2}$  E. course, until Capstan Head bears east, when haul up to E.N.E., and anchor as before directed.

The North channel is very much contracted by a range of *North Channel*, detached rocks making out from the reef on the west side, and should not under ordinary circumstances be attempted by a stranger; as at high water the reefs are almost entirely covered, and it is difficult to judge of your exact position, unless familiar with the various localities and landmarks. To enter by this (North) channel, bring a remarkable notch in the southern range of hills in line with a small hillock just to the eastward of False Capstan Head (see view No. 1 on chart), and stand in on this range S. by E.  $\frac{1}{2}$  E. until Kumi Head bears E.  $\frac{1}{2}$  N., when open a little to the southward, so as to give the reef to the eastward a berth, and select your anchorage.

There is a black spar-buoy anchored on Blossom reef half *Blossom reef*. way between its eastern and western extremities, a red spar-buoy on the point of reef to the W.N.W. of Abbey point, and a white spar-buoy on the south-east extremity of Oar reef. Flags of corresponding colours are attached to all these buoys, and they afford good guides for the South and Oar channels. There are two large stakes on the reefs to the eastward and

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\* The chart referred to has not yet been received at the Hydrographic Office, Admiralty.

westward of North Channel, planted there by the natives, this being the channel mostly used by junks trading to the northward.

*Water.*

An abundance of water can always be obtained at the fountains in Junk river, where there is excellent landing for boats. There is a good spring near the tombs in Kumi bluff; but unless the water is perfectly smooth the landing is impracticable, and under any circumstances it is inconvenient from the want of sufficient depth, except at high tide.

*Pilot.*

It is directed by the Commander-in-chief that the vessels of the squadron under his command shall heave-to on approaching Napha, and make signal for a pilot, when an officer familiar with the localities and landmarks will be sent off from the vessel in port to pilot her in, or point out to her commander the position of the dangers to be avoided.

Should there, however, be no vessel in port, then boats are to be sent ahead, and anchored upon the extremities of the reefs between which the vessel intends to pass.

By order of Commodore M. C. PERRY.

SILAS BENT, Lieut. U.S. Navy.

Macao, Oct. 1st, 1853.

*Note.*—The spar-buoys above described were securely moored at the time they were placed in their respective positions by order of Commodore Perry, but may be displaced, or entirely removed, by the heave of the sea or by the natives, and should therefore not be entirely relied upon.

S. BENT.

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No. 3.

OONTING OR PORT MELVILLE.

*Oonting.*

Oonting harbour is on the north-west side of Loo-choo, and distant about 35 miles from Napha.

Sugar-Loaf island, an excellent landmark, lies about 10 miles to the westward of the entrance. The island is low and flat, with the exception of a sharp conical peak near its eastern extremity, which rises to a height of several hundred feet.

Passing to the northward of Sugar Loaf island an E.S.-Easterly course will bring you to the mouth of the harbour, and to the northward and westward of Kui island. It is

advisable to heave-to here, or anchor in 20 or 25 fathoms water, until boats or buoys can be placed along the edges of the reefs bordering the channel; for without some such guides, it is difficult for a vessel of large draft to find her way in between the reefs, which contract, in places, to within a cable's length of each other, and are at all times covered with water.

The ranges and courses for the channel are:—first, Hebe *Directions*. rock in one with Double-topped mountain (see view on chart), bearing S. 37° E. Steer this course, keeping the range on until Chimney rock bears S.  $\frac{1}{4}$  E.; then for Chimney rock, until Point Rankin bears S. 49° W.; then for Point Rankin, until entering the basin of Oonting, when anchor; give your ship room to swing clear of the reef making out to the northward of Point Rankin, and you will be as snug as if lying in dock, with good holding ground, completely land-locked, and sheltered almost entirely from every wind.

Good water is to be had at the village of Oonting.

By order of Commodore M. C. PERRY.

SILAS BENT, Lieut. U. S. Navy.

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#### No. 4.

#### BONIN ISLANDS.

SAILING DIRECTIONS and OBSERVATIONS on PORT LLOYD, from Reports of Acting Masters MADIGAN and BENNETT, of the U. S. Ships Saratoga and Susquehanna.

The entrance to the harbour of Port Lloyd, on the western *Port Lloyd* side of Peel island, one of the Bonin group, is well defined; so that it can scarcely be mistaken.

A ship bound in would do well to place a boat on the shoal that makes off south from the eastern point of Square rock. This shoal can be easily seen from aloft, however, even when there is no swell on. It extends full 2 cables' lengths from Square rock to the southward, and is steep. The centre of the shoal is awash with a smooth sea. The tide rises about 3 feet, and there is a coral rock about 1 cable's length north from the northern point of Southern Head, on which a depth of 8 feet was found. But a ship entering the harbour would not be likely to approach Southern Head so near as to be upon

it. This island, as well as those surrounding it, is chiefly visited by whale ships, and its products, therefore, are such as to suit their wants.

*Supplies.* Potatoes, yams, and other vegetables, fruits of various kinds, together with wild hogs and goats, can be procured from the few whites and Sandwich islanders,—thirty-five in all,—settled there. Wood is good, and plentiful; and water can be had, though in limited quantities, and slightly tainted by the coral rocks from which it springs.

*Anchorage.* The anchorage is fair, though open to the south and west. The reconnaissance made by order of the Commander-in-Chief proved the accuracy of Captain Beechey's chart.

*Longitude.* Mr. Bennett, Acting Master of the Susquehanna, says in his report:—"Assuming the position of Napha in Great Loo Choo Island, as established by Captain Beechey, to be correct, I find, by the mean of my chronometers, that he has placed Ten Fathom Hole, in Port Lloyd, five miles too far to the westward, and consequently the whole group is placed that much to the westward of its true position."\*

By order of Commodore M. C. PERRY.

SILAS BENT, Lieut. U. S. Navy.

Macao, Oct. 1st, 1853.

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No. 5.

SAILING DIRECTIONS FOR THE HARBOUR OF  
SIMODA, JAPAN.

BY LIEUT. WM. L. MAURY, U.S.N.

U.S. Steam Frigate, "Mississippi,"  
Honolulu, Oct. 26th, 1851.

*Simoda.*

Vessels bound to the harbour of Simoda from the southward and westward should make Cape Idzu, from which Rock island bears E.S.E.  $\frac{1}{4}$  E., distant about 5 miles; and if the weather is at all clear, the chain of islands at the entrance of the Gulf of Yedo will at the same time be plainly visible.

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\* In Captain Beechey's chart the longitude of Ten Fathom hole is given as 142° 11' 30" E. In a meridian distance measured from Hong Kong with 5 chronometers, interval 33 days, Captain Collinson, C.B., in 1852, made the longitude of Port Lloyd, 142° 15' E. assuming Hong Kong as 114° 10' E.

Between Rock island and the main land there are a number of rocks awash and above water, among which the Japanese junks freely pass; but a ship should not attempt a passage inside of Rock island unless in case of urgent necessity, particularly as the north-easterly current, which sweeps along this coast, seems to be, at this point, capricious both in direction and velocity.

Giving Rock island a berth of a mile, the harbour of Simoda will be in full view, bearing N.  $\frac{1}{2}$  W. distant five miles.

Vandalia Bluff, on the east side of the entrance, may be *Vandalia*. recognized by a grove of pine trees on the summit of the bluff, and the village of Susaki, which lies about a third of the way between it and Cape Diamond. Cape Diamond is a sharp point making out to the eastward of the entrance of the harbour.

Standing in from Rock island, you will probably pass through a number of tide rips, but not get soundings with the hand lead until near the entrance of the harbour, when you will be in from 14 to 27 fathoms.

Should the wind be from the northward and fresh, a vessel should anchor at the mouth of the harbour until it lulls or shifts, or until she can conveniently warp in, as it is usually flawy and always baffling.

Approaching from the northward and eastward, a vessel *Approach*. can pass on either side of Oho Sima, from the centre of which Cape Diamond bears W.S.W.  $\frac{3}{4}$  W., distant about twenty miles.

Between Oho Sima and Simoda, no dangers are known to exist; but the north-easterly current must be borne constantly in mind, particularly at night and in thick weather. Its general strength is from two to three miles per hour; but as this, as well as its direction, is much influenced by the local winds, headlands, islands, &c., neither can be relied upon.

Should Oho Sima be obscured by thick weather, before *Rock Island*. reaching Cape Diamond endeavour to sight Rock island, for there are no conspicuous objects on the main land by which a stranger can recognise the harbour at a distance, and the shore appears as one unbroken line.

To the westward of the harbour there are several sand beaches, and three or four sand banks. These can be plainly

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discerned when within six or eight miles, and are good landmarks.

*Kozu Sima.*

A vessel from the southward and eastward should pass to the westward of the island of Kozu Sima,\* which may be known by a remarkable snow-white cliff on its western side. There is also a white patch on its summit, to the northward of the cliff. From this island Simoda bears N. by W.  $\frac{1}{2}$  W. distant about 28 miles.

There are but two hidden dangers in the harbour, namely:—

*Southampton rock.*

SOUTHAMPTON ROCK, which lies in mid-channel (bearing N.  $\frac{1}{2}$  W. from Vandalia Bluff, about three fourths of the way from it and Centre island) is about 25 feet in diameter, and has 2 fathoms water on it. It is marked by a white spar-buoy.

*Supply rock.*

SUPPLY ROCK, bearing S. by W. a short distance from Buisako islet, and is a sharp rock, with 11 feet water on it. Its position is designated by a red spar-buoy.

Both these buoys are securely moored, and the authorities of Simoda have promised to replace them should they by any cause be removed.

*Centre island.*

Centre island, which receives its name from being the point from which the Treaty limits are measured, is high, conical, and covered with trees. A cave passes entirely through it.

In the outer road, or mouth of the harbour, a disagreeable swell is sometimes experienced ; but inside of the Southampton rock and Centre island vessels are well sheltered, and the water comparatively smooth. Moor with an open hawse to the southward and westward.

There are good landings for boats in Simoda creek, and at the village of Kakisaki.

*Pilots.*

A harbour master and three pilots have been appointed ; wood, water, fish, fowls, and eggs, also sweet potatoes and other vegetables, may be procured from the authorities. It is necessary to supply them with casks to bring the water off.

*Position.*

|                         |                             |   |             |                   |
|-------------------------|-----------------------------|---|-------------|-------------------|
| Centre Island, Latitude | -                           | - | -           | 34° 39' 49" N.    |
| „                       | Longitude                   | - | -           | 138 57 50 E.      |
| „                       | Variation                   | - | -           | 52 min. westerly. |
| „                       | High Water, full and change | 5 | hour.       |                   |
| „                       | Extreme Rise of Tide        | - | 5 ft. 7 in. |                   |
| „                       | Mean                        | „ | „           | 3 ft.             |

\* This is the most south-western island of the chain of islands lying off the Gulf of Yedo.

To make the foregoing directions more easily comprehended, they have been rendered as concise as possible ; but to furnish further information to navigators bound to or passing the port, the following additional remarks are appended :—

The harbour of Simoda is near the south-eastern extremity *Simoda* of the peninsula of Idzu, which terminates at the cape of that name. To the northward of the harbour, a high ridge intersects the peninsula ; and south of this, all the way to the cape, it is broken by innumerable peaks of less elevation.

The harbour bears S.W. b. W. from Cape Sagami, at the entrance of Yedo bay, distant about forty-five miles.

Rock island is about 120 feet high, and a third of a mile in *Rock Island*. length, with precipitous shores and uneven outlines. It has a thick matting of grass, weeds, moss, &c., on the top.

From the summit of this island overfalls were seen, bearing N.  $\frac{1}{2}$  W., distant a mile or a mile and a half. These may have been caused by a rock or reef. An attempt was made to find it ; but the strong current and fresh wind prevented a satisfactory examination. The Japanese fishermen, however, deny the existence of any such danger.

N. b. W. from Rock island, distant 2 miles, are the Ukona *Ukona Rocks*. Rocks. These are two rocks, though they generally appear as one. The largest is about 70 feet high. Between these and Rock island, the current was found setting east-north-easterly, fully four miles an hour.

Centre island bears from Rock island N.  $\frac{1}{2}$  E., distant  $5\frac{1}{2}$  miles, and from Ukona rocks N. b. E.  $\frac{1}{2}$  E., distant  $3\frac{1}{2}$  miles.

Buisako inlet lies N.N.E. from Centre island. It is about 40 feet high, and covered with trees and shrubs.

Should the buoy on Southampton rock be removed, the east end of Centre island in one with the east end of Buisako, will clear the rock to the westward.

Off the village of Susaki, and distant a third of a mile from *Susaki*. the shore, is a ledge of rocks upon which the surf is always breaking ; give them a berth of 2 cables' lengths in passing.

Approaching from the eastward, the harbour will not open until you get well inside of Cape Diamond.

To the northward of Cape Diamond is the bay of Sirahama, *Sirahama*. which is quite deep ; and as it has also several sand beaches,

it may be mistaken for Simoda; but as you approach this bay, Cape Diamond will shut in the Ukona rocks and Rock island to the southward, whilst in Simoda Road they are visible from all points.

*Position.* Cape Idzu is in lat.  $34^{\circ} 36' 3''$  N., long.  $138^{\circ} 52' 32''$  E. Rock island, lat.  $34^{\circ} 34' 20''$  N., long.  $138^{\circ} 57' 10''$  E.

S.W.  $\frac{1}{2}$  W. from Kozu Sima, distant about 20 miles, and south a little westerly from Cape Idzu, distant about 40 miles, there are two patches of dangerous rocks, 15 or 20 feet high, *Redfield Rocks*, which have been named Redfield Rocks. They are in lat.  $33^{\circ} 56' 13''$  N., long.  $138^{\circ} 48' 31''$  E.; and lat.  $33^{\circ} 57' 31''$  N., long.  $138^{\circ} 49' 13''$  E.

These positions may not be strictly correct, but it is believed they are not much out of the way.

By order of Commodore M. C. PERRY, U.S.N.

SILAS BENT, Flag Lieutenant.

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### No. 6.

#### SAILING DIRECTIONS FOR THE PORT OF HAKODADI.

BY LIEUT. WM. L. MAURY, U.S.N.

U.S. Steam Frigate "Mississippi," at Sea,  
July 20th, 1854.

*Hakodadi.*

This splendid and beautiful bay, which for accessibility and safety is one of the finest in the world, lies on the north side of the straits of Sangar,\* which separate the Japanese islands of Nippon and Yesso, and about midway between Sirija Saki† (the N.E. point of Nippon) and the city of Matsmai. It bears from the cape N.W.  $\frac{1}{2}$  W., distant about 45 miles, and is about 4 miles wide at the entrance, and 5 miles deep.

The harbour is the south-eastern arm of the bay, and is completely sheltered, with regular soundings and excellent holding ground. It is formed by a bold peaked promontory, standing well out from the high land of the main, with which it is connected by a low sandy isthmus, and which, appearing at a distance as an island, may be easily recognised.

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\* Strait of Tsugarn of Siebold.

† Saki, in the Japanese language, means Cape.

The town is situated on the north-east slope of the promontory, facing the harbour, and contains about 6,000 inhabitants.

Approaching from the eastward, after passing Cape Suwo Kubo, named on our chart Cape Blunt, which is a conspicuous headland 12 miles E. b. S. from the town, the junks at anchor in the harbour will be visible over the low isthmus.

*For entering the Harbour.*—Rounding the promontory of *Directions*. Hakodadi, and giving it a berth of a mile to avoid the calms under the high land, steer for the sharp peak of Komaga-daki, bearing about north, until the east peak of the Saddle, bearing about N.E. b. N., opens to the westward of the round knob on the side of the mountain, then haul up to the northward and eastward, keeping them open until the centre of the sand hills on the isthmus bears S.E. b. E.  $\frac{3}{4}$  E. (these may be recognised by the dark knolls upon them). This will clear a spit which makes out from the north-western point of the town in a N.N.-westerly direction two-thirds of a mile; then bring the sand hills a point on the port bow, and stand in until the north-western point of the town bears S.W.  $\frac{1}{2}$  W., when you will have the best berth, with  $5\frac{1}{3}$  or 6 fathoms water. If it is desirable to get nearer in, haul up a little to the eastward of south, for the low rocky peak which will be just visible over the sloping ridge to the southward and eastward of the town. A vessel of moderate draught may approach within a quarter of a mile of Tsuki Point, where there is a building-yard for junks. This portion of the harbour, however, is generally crowded with vessels of this description; and unless the want of repairs or some other cause renders a close berth necessary, it is better to remain outside.

If the Peak or Saddle is obscured by clouds or fog, after doubling the promontory, steer N. b. E.  $\frac{1}{2}$  E., until the sand hills are brought upon the bearing above given, when proceed as there directed.

A short distance from the tail of the spit is a detached sand *Sandbank*. bank, with  $3\frac{1}{2}$  fathoms on it. The outer edge of this is marked by a white spar-buoy. Between this and the spit there is a narrow channel with  $4\frac{1}{2}$  fathoms water. Vessels may pass on either side of the buoy, but it is most prudent to go to the northward of it.

Should the wind fall before reaching the harbour, there is good anchorage in the outer roads, in from 25 to 10 fathoms.

*Water.*

Excellent wood and water may be procured from the authorities of the town; or, if preferred, water can be easily obtained from Kamida creek, which enters the harbour to the northward and eastward of the town.

*Supplies.*

The season, at the time of our visit, was unfavourable for procuring supplies; a few sweet and Irish potatoes, eggs, and fowls, however, were obtained, and these articles, at a more favourable period of the year, will no doubt be furnished in sufficient quantity to supply any vessel that may in future visit the port.

Our seine supplied us with fine salmon and a quantity of other fish, and the shores of the bay abound with excellent shell-fish.

*Weather.*

During our stay in this harbour, from the 17th of May to 3d of June, the weather was generally pleasant until the 1st of June, when the fog set in. It was usually calm in the morning, but towards the middle of the day a brisk breeze from S.W. sprang up.

*Kamida.*

|                         |                                      |                  |
|-------------------------|--------------------------------------|------------------|
| Kamida creek, mouth of, | Latitude -                           | - 41° 49' 22" N. |
| "                       | Longitude -                          | - 140 47 45 E.   |
| "                       | Variation -                          | - 4 30 W.        |
| "                       | High water, full and change, 5 hrs.  |                  |
| "                       | Extreme rise and fall of tide, 3 ft. |                  |

Our chronometers were rated at Napa-Kiang, Loo Choo, from the position of that place as given by Captain Beechey, R.N.

By order of Commodore M. C. PERRY, U.S.N.

SILAS BENT, Flag Lieutenant.

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No. 7.

SAILING DIRECTIONS FOR THE RIVER MIN.

BY MR. JOHN RICHARDS, MASTER, R.N., COMMANDING H.M.  
SURVEYING VESSEL SARACEN, JUNE, 1854.

Since the earlier portion of the China Pilot was printed, a fresh survey of the River Min has been received, accompanied by the following directions, which are supplementary to Art.

202 of the Pilot. The new chart, on a scale of one inch to a mile, will be published in October, 1855.

The best time for entering the River Min is from half-flood to half-ebb.

There are 15 feet water on the outer bar, and 13 feet on the *Bars*. inner bar, at low water springs, with a 16 feet rise of tide. At low water neaps there are 19 feet and 17 feet respectively, and 27 and 25 feet at high water. At half tide, both at springs and neaps, there is a depth of 21 feet over the inner bar.

When the north sands of the entrance begin to dry, there are scarcely 16 feet on the bar. At low water springs they dry about 3 feet; at neaps they do not show.

In fine weather, the North and South breakers appear, *Breakers at entrance* from half-ebb to half-flood, and the Outer Knoll seldom until after the last quarter; but in bad weather a line of breakers extends from the Outer Knoll across to the North bank, and a continuous line from the South breakers to Black Head.

The first of the flood-tide sets in from the N.E., and, running *Tides*. with great velocity through numerous small channels, and over the North Banks inside of Rees Rock, sets across the entrance of the river, passing Sharp Peak direct for Round island, gradually changing its direction for Ho-kiang island, as the tide rises. The first of the ebb comes from the direction of Round island, and sets across the Sharp Peak entrance over the North banks; as the tide falls, the stream takes the regular channel.

Outside of Rees Rock, the ebb runs strong to the eastward until nearly low water, when it changes its direction to S.E. The flood tide, now coming from N.E., turns the stream off to the southward; and near the Knoll it runs strong to S.S.W. for three hours, changing its direction to the westward as the tide rises. After half-flood, the stream sets towards Round island, and abates considerably in strength.

At Temple point, the ebb runs down for nearly two hours after it is low water by the shore, and the flood-stream runs for about an hour and a half after high water.

**DIRECTIONS.**—The channel north of the Outer Knoll is not safe, and should not be attempted by large vessels.

*Marks for entering.*

To run for the South Channel, the southern breakwater rock nearly in line with the south point of the Middle Dog, is the mark generally used in cloudy weather by vessels frequenting the Min. High Sharp Peak open to the southward of Sharp Island Peak, is a good mark to lead in between the Knoll and the South Bank ; when Triangle Head (to the southward) comes open of the small black rocks off Sand Peak Point, or when the North Breakers bear north, then haul up N.W. or N.N.W. (according as ebb or flood is running), and, crossing the outer bar, gain the deep channel to the northward.

If passing to the north of the Nine Feet Patch, the Sharp Shoulder should be well open to the northward of the Sharp Island Peak, before the Sand Peak comes on with the middle of the Black Rocks off the point.

If passing to the southward, the Sharp Shoulder should be kept a little open to the southward, before passing that line of bearing.

*For crossing the Bar.*

When Sand Peak appears well open to the right of the Black Rocks, Sharp Shoulder may be brought in line with Sharp Island Peak, gradually opening the Shoulder to the southward as Serrated Peak comes on with the S.E. extreme of Woufou, which now becomes the leading mark, until the middle of the Brother A comes on with the right high extreme of the Brother B (beacons are proposed to mark these spots) ; with which mark on, cross the bar, steering a mid-channel course for the river, when Round Island comes on with the S.E. extreme of Woufou.

Small vessels turning in over the bar, will find the following marks useful : Stand no nearer to the North Bank than with Temple Point in line with Sharp Peak Point ; nor nearer the S.E. side of Ho-kiang Bank, than with Sharp Island Peak on with the middle of Sharp Point Bluff ; nor to the N.E. side of Ho-kiang bank, than to bring the right high extreme of the Brother A in line with the left high extreme of the Brother B.

*Anchorage.*

There is good anchorage in  $5\frac{1}{2}$  fathom, stiff mud, outside of the inner bar, with the Brother B in line with, or a little open of, Sharp Peak Point, and Rees Rock in line with Black Head.

*Six Feet Rock.*

The Six Feet Rock in mid-channel off Temple Point is cleared by keeping Sharp Island Peak open of Woga Point (next above

it), which mark leads to the southward of it. When the Sharp Island Peak is shut in behind the high land of Woga, the ship will pass inside, or to the northward of the Temple Point Rock. In the N.E. monsoon, the high land of Woga in line with or a little open of Temple Point, is a good line to anchor on ; in the S.W. monsoon, Woga Creek is the best anchorage.

The Kinpai Pass is dangerous to strangers, particularly at or near spring tides, for then the violence of the current produces eddies among the rocks, that occasionally cross the channel. On the flood, a dangerous eddy extends from Kinpai Point above it, in the direction of the Ferry ; and for this reason, the passage north of the Middle ground is considered the best.

After passing White fort close with the northern shore, it *Middle Shoal* is very steep, and may be approached with safety. The highest part of Pass island in line with White Fort bluff outer extreme, is a near clearing mark for the northern shoulder of the Middle shoal. It is recommended to shut Pass island in altogether until past that point, opening it again immediately afterwards.

The danger of this passage is in passing the Shoulder, which *Caution*. forms a sharp angle of the bank, with only one foot on it at low water springs, and 4 fathoms close-to. From this point to the opposite shore, the distance is only  $1\frac{1}{4}$  cables. After clearing this point, in passing either up or down, the tide tends rather to set the ship from the bank into the stream.

The high serrated peak in line with the ferry house, leads *Marks for Anchoring*. through between the Middle and Quantao Shoals, and is a good line for ships to anchor on when coming down the river, and waiting for an opportunity of dropping through the Pass.

Passing the ferry house on the port hand, the Tongue *The Tongue Shoal*. shoal is reached, steep-to, having seven feet near its northern extreme. This part is cleared by keeping the ferry house midway between Kinpai bluff and the Tower, until the highest point of Kowlvi Head comes in line with Half-tide rock, seen ahead. Between Half-tide rock and Tintao, also ahead, the bottom is very irregular.

Proceeding upwards, the river narrows at the Mingan Pass. *Scout Rock*. The Scout rock is the end of a ledge projecting 25 yards from Couding island with seven feet near its extreme.

*Spiteful Rock.* The Spiteful rock, again, farther up, shows at low water. It is part of a rocky ledge projecting about 30 yards from the island.

To pass between the Spiteful rock and Losing spit, and avoid the latter, do not shut in Yunoi Head with Flat island, until Black Cliff Head, just passed (marked with a white spot), comes in line with the northern edge of Twaisi or Spiteful island.

*Pagoda Rock.* The Pagoda rock, off the south point of Losing island, dries at low water spring tides. The best anchorage is between this rock and about half a mile above it; should this anchorage be full, vessels should anchor near the south shoulder of Losing island, where they will be out of the strength of the tide.

In dropping through the Mingan Pass with the ebb-tide, it is necessary to guard against a dangerous eddy setting from the point above Couding island on to Scout rock.

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#### No. 8.

### HARBOURS OF KOK-SI-KON AND TA-KAU-KON AT THE SOUTH-WEST END OF TAI-WAN OR FORMOZA.

By Mr. JOHN RICHARDS, MASTER COMMANDING H.M.  
SURVEYING VESSEL SARACEN.

[In the present dearth of information relating to the S.W. coast of Tai-wan, or Ilha Formoza of the Portuguese, the following notes on the harbours of Kok-si-kon and Ta-kau-kon, and some other well-determined positions, by Mr. John Richards, commanding H.M.S. Saracen, will be serviceable to seamen. It will be seen that the longitudes bring the coast about 10 miles farther west than laid down in the Admiralty chart, taken by Dalrymple from a Dutch original.]

*Kok-si-kon.*

Feb. 24, 1855.—The wind failing at sunset, I anchored for the night. At daylight next morning I dispatched an officer with the interpreter to obtain information, and from the report on his return I embarked a fisherman as pilot and entered the small harbour of Kok-si-kon.

Here we found sixteen sail of large junks, and as they occupied the best part of the anchorage, we had to put up with an outside berth and imperfect shelter.

All this part of Formoza is fronted by sandbanks elevated only 2 or 3 feet above high water. They run in lines, generally parallel to the coast, from 2 cables to half a mile broad, and are pierced at every mile or so by narrow channels, depths varying from 7 feet and under. There is no vegetation in sight from the western sand bar ; the main land of Formoza can only be seen in very clear weather from it, and the whole intermediate space seems to be an intricate mass of sand and mud banks and shallows, with occasional patches of sedge. These sandbanks are occupied by a few poor fishermen, whose miserable huts and bamboo rafts are the only relieving features of this dreary scene.

Port Kok-si-kon can only be distinguished by a stranger by three larger clumps of huts than can be found on any of the outer sandbanks, and by the number of large junks generally at anchor inside.

Ape hill to the southward, and the South Ponghu or Pesca-*Ape Hill.* dores island to the westward, will be found useful marks to run in for the place. Kok-si-kon bears N. 21° W. 30 miles from Ape hill, and E. b. S.  $\frac{3}{4}$  S. 26 miles from the South Pescadores [East ?]. The old Dutch fort of Zelandia, built in 1634, is just in sight from the anchorage, from which it bears S. 42' E.  $7\frac{1}{2}$  miles. I made the south point of the entrance to the port to be in lat. 23° 5' 52" N., long. 120° 5' E.; var. 0° 33' W.; high water full and change, 11<sup>h</sup> 30<sup>m</sup>; rise of tide at springs about 3 feet, but very irregular.

This port is the outlet of several small shallow streams *Harbour* which here unite and form a channel through the mass of sandbanks fronting the coast. This channel or port runs N.E. and S.W., and, taking the 3 fathom line as its boundary inside, is three quarters of a mile long and only 2 cables broad, with  $4\frac{1}{2}$  fathoms in the middle ; it is, therefore, necessary to moor N.W. and S.E. The bar has 12 feet at low water springs. The deepest part is generally marked by the natives with bamboos ; but, as the channel is both wide and straight and the bottom remarkably even, it is by no means difficult of access for vessels of 12 or 13 feet at high water. The Saracen

sailed in with a draft of 13 feet 2 inches, but then the sea was remarkably smooth, and I think that generally vessels drawing over 13 feet should not attempt to enter, particularly with any swell on. The tide from the bar inside sets fairly through the channel; its greatest strength about a knot. Outside the bar the flood sets to the northward, along the coast, the ebb to the southward; its strength varies in different positions, running with much greater velocity off the west sand bar or the edge of the deep water than in the shoal water bight off Tai-wan, where it is occasionally variable in strength and direction.

**Water.**

Fresh water is procured from the town of Tai-wan-fu, and if a vessel should only require this article, she will do better by anchoring at once off the town, about three quarters of a mile from the shore; where in  $5\frac{1}{2}$  fathoms, with the old Dutch fort bearing N.E., she will find capital anchorage and good shelter from December to March. During the rest of the year the chances of S.W. winds would render this position unsafe, and vessels should of course anchor farther out.

At the distance of  $1\frac{3}{4}$  miles N.W. of the old Dutch fort of Zelandia there is a large clump of trees on the outer sand bar.

**Tai-wan-fu.**

The ruins of the fort are about two-thirds of a mile inside the sand, about 60 feet above the sea level, and the only conspicuous landmark in this neighbourhood; they can be seen eight or nine miles from a ship's deck. The principal town of the island Tai-wan-fu, lies 2 miles S.E. from the Dutch fort, and large junks trading to the place in the N.E. monsoon generally anchor off the fort and send their cargoes by this route to the city.

Here the main land of Formoza approaches within a mile of the sand bars fronting the coast, and although it is generally marshy and flat, it is cultivated with rice, &c. The sand bars are also occasionally clothed with bushes and grass, and are densely populated by fishermen, who appear to be well fed and clothed and a happy and contented people. These fishermen pursue their vocation generally in divisions under the direction of particular chiefs; and their rafts hauled upon the beach, placed in tiers on their sides, form a feature in the appearance of the coast. Whenever we landed we were treated with the greatest civility and deference, and our surveying marks

although sometimes made of an article most tempting to them (white calico), were never in one case interfered with.

There is no remarkable feature in the coast until you are within 8 miles of Ape hill, where commence some low mud cliffs, and there is also a small piece of table land about a mile inland. The coast between the old Dutch fort and Ape hill is nearly a straight line of beach, pierced by four small streams, navigable only for boats.

Ape hill, called by the natives Ta-kau, bears S.  $14^{\circ}$  E.  $22^{\frac{1}{2}}$  *Ta-kau.* miles from the Dutch fort. It appears like a truncated cone, on a north and south bearing. It is 1,035 feet high, sloping towards the land side, and appearing at a distance like an island. Its apex I made in lat.  $22^{\circ} 38' 3''$  N., long.  $120^{\circ} 16' 30''$  E. Four miles and a half N.E. of Ape hill is another remarkable hill, which, from its resemblance to a huge whale sleeping on the water, I named "Whaleback." Then N.N.E., 12 miles, there is a small triangular-shaped hill, and a large detached piece of table land resembling a quoin, on a north and south bearing. These are the only landmarks on this part of the coast (which is all very low), and of these Ape hill is the most useful, as standing out on the coast line. It is frequently seen distinctly when all the others are shrouded in mist.

This hill is one vast block of coral, and, although resembling the crater of a volcano in the peculiar form of its apex, I could not discover any traces of volcanic action. From its summit to the southward it descends in a gradual though somewhat rugged slope, and terminates in a huge nearly level block of a mole-like appearance, which, jutting through the beach to seaward for about 300 yards, forms a sheltered anchorage for small vessels in the strength of the N.E. monsoon. This mole is separated from Ape hill by a deep chasm 50 fathoms wide, and within this is the little harbour of Ta-kau-kon.

The S.W. part of the mole (a steep cliff) I named Saracen *Saracen Head.* head. It bears S.S.E. 34 miles, from West point, and 32 miles from Gull point, on the same line of bearings. It is in lat.  $22^{\circ} 36' 15''$  N., long.  $120^{\circ} 16' 41''$  E. ; var.  $0^{\circ} 34\frac{1}{2}'$  W.

The inlet of Ta-kau-kon has a narrow bar, of 11 feet depth at low water, extending from the south side of the entrance, curving to the N.W. and N.N.W. in the direction of Ape hill;

but directly this is passed the water deepens to 4, 6, and 9 fathoms just within the port.

The entrance, though narrow, is steep-to and perfectly safe of approach, but unfortunately the anchorage within is so very confined that there is no room for a vessel to swing ; it is therefore necessary to moor head and stern. The tides are also rather strong when near the springs ; but this anchorage is susceptible of great improvement at small expense, and as Formoza is opened to commercial enterprise this place must advance in importance.

The coast included between the points of our late survey we found perfectly safe of approach.

*Supplies.*

The following are the prices we paid for refreshments :— Water, very good (but cannot be obtained in any large quantity, from the difficulty of transport), at 50 cents per 16 picul, 80 cattys, or 1 ton ; bullocks, 4 to 6 dolls., according to size ; pigs, 1 to 5 dolls., according to size ; fowls, 1 doll. to 1 doll. 75 cents per dozen ; ducks, 50 to 75 cents per dozen ; eggs, 300 per doll. ; rice, 1 doll. 25 cents to 1 doll. 75 cents per picul ; sugar, 1 doll. 25 cents to 2 dolls. 50 cents per picul. Fish and vegetables at a very low rate.

---

*Meridian Distance measured from Kowloon Point, Hong Kong, to Observatory Point, Kok-si-kon, between February 13th and 26th.*

|                       | h. m. s.                 |  |
|-----------------------|--------------------------|--|
| Chronometer           | d 0 23 41'54             | From February 13th to 22d smooth water and even temperature. On the 22d heavy gale and sudden increase of temperature; for which reason the Kowloon rate was taken up to the 22d and the Kok-si-kon rate was brought back from 26th. |
| „                     | a 0 23 37'90             |  |
| „                     | b 0 23 30'68             |  |
| „                     | c 0 23 37'11             |  |
| „                     | e 0 23 49'07             |  |
|                       | 196'30                   |  |
| Mean                  | 0 23 39'26<br>46'73      | Port Kok-si-kon East of Kowloon point.<br>Saracen Head, East of Kok-si-kon.  |
|                       | 0 24 25'99<br>7 36 40'76 | Saracen Head, Ape hill, E. of Kowloon point.<br>E. Longitude of Kowloon point.   |
| 120° 16' 41"=8 1 6'75 |                          | E. Longitude of Saracen Head, Ape Hill.  |

Saracen Head is given according to this measurement.

---

*Meridian Distance measured between Saracen Head, Ape Hill, and Kowloon Point, between March 28th and April 7th.*

|                         |                     |          |        |  |
|-------------------------|---------------------|----------|--------|--|
| Chronometer <i>d</i>    | 0 24 23'69          | h. m. s. | 23'69  | Double value.                                |
| "                       | <i>a</i> 0 24 26'24 |          |        |  |
| "                       | <i>b</i> 0 24 20'69 |          |        | In this measurement we had fine weather and  |
| "                       | <i>c</i> 0 24 23'49 |          |        | even temperature, and, as the chronometers   |
|                         |                     |          |        | performed well, double value has been given  |
|                         |                     |          |        | to this measurement.                         |
|                         |                     |          | 117'80 |  |
| Mean                    | 0 24 23'56          |          |        | Saracen Head E. of Kowloon Point, returning. |
|                         | 0 24 23'56          |          | "      | "  |
|                         | 0 24 25'99          |          | "      | " going.                                     |
|                         |                     |          | 13'11  |  |
| Mean result             | 0 24 24'37          |          |        | Saracen Head, East of Kowloon Point.         |
|                         | 7 36 40'76          |          |        | E. Longitude of Kowloon Point.               |
| 120° 16' 17" = 8 1 5.13 |                     |          |        | E. Longitude of Saracen Head.                |

Mean latitude Observatory Point, Kok-si-kon, sixty-six  
observations ..... 23° 5' 59" N.  
Mean latitude Saracen head, Ape hill, sixty-six observations 22° 36' 14" N.

JOHN RICHARDS, Master R.N.,  
In charge of the China Survey.



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